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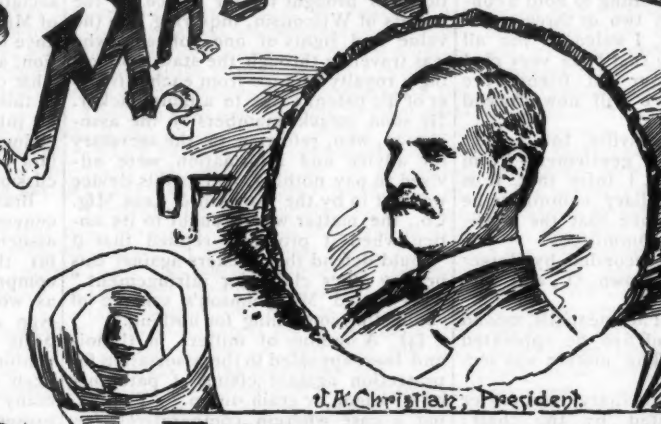
THE MASS CONVENTION OF THE MILLERS' National ASSOCIATION



W. A. Christian, President.

C. H. Seyht.

Alex. H. Smith.

S. H. Seaman, Secy.

Chicago, May 12th and 13th 1886.

THE NEW PRESIDENT.

JOHN CROSBY,

OF WASHBURN, CROSBY & CO., MINNEAPOLIS.

THE PROCEEDINGS.

The meeting of the Millers' National Association was called to order at the Grand Pacific hotel, Chicago, at 10 o'clock a. m., May 12, by Mr. Seybt, of Highland, Ill., the first vice president, in the absence of John A. Christian, the president, who was absent on account of illness. Mr. Seybt, in calling the meeting to order, said:

In the absence of your worthy president, the duty devolves upon me to call this meeting to order, and in doing so I will say that I am no speaker, and cannot therefore address you at any length. I am very happy to see you all here to-day. It is indeed very pleasant to meet old friends and shake their hands at any time, but particularly so at such business reunions as this. It will at least make us forget that we have been rivals in business, or competitors in any way, or trying in any manner to undersell each other. We meet now as friends, or fellow sufferers, if you please, for certainly the milling business has had more hardships to contend with than most other commercial businesses I know of, especially in these times, when the whole commercial world is suffering. There was a failure of the crops last year, and the consequence to us was that prices of the raw material were very much in advance of the flour, and those selling it had to contend with a declining market. The mechanical part of our business has undergone a complete revolution. Inventions were crowding on us so that our milling property was of little use, we had to build anew again, so that, gentlemen, we had to come here, not only for the purpose of handshaking and renewing old acquaintanceship, but for transacting business, which will consist of the usual routine. It is now three years since we held a meeting on account of business. Mr. Downton, through his attorneys, has seen fit to enter suit against some of our members who, he claims, have been infringing on his patent, and according to his claim, pretty near every miller in this country has been infringing. Your executive committee has had this matter under consideration. We held a meeting and came to the conclusion to invite to our meeting all the roller manufacturers. We asked all of them to send in the opinions of their lawyers. Those opinions which came to us we transmitted to Mr. Thurston, of Rhode Island, for the purpose of getting his opinion, which arrived here a couple of days ago. Your executive committee has been in session, talking over what might seem the best thing to do. We have, on the one hand, the proposition of Mr. Downton for a certain consideration, and on the other hand we have the legal opinion of our lawyer concerning the validity and probable outcome. In fact we are engaged at present in consultation with the mill manufacturers, to find out what proportion of the expenses they will bear in case a fight is made. It is for you to decide whether we shall make a fight, or compromise. It is impossible and impracticable to lay before you all the opinions, together with the opinion of Mr. Thurston, our own lawyer, which covers 26 pages of closely printed matter alone, or to read it all to you. Besides this, it would be giving our thunder away to our opponents. Then again, it is not fair that your executive committee should bear the whole burden, therefore I think it would be better to appoint an auxiliary committee to give this question their close attention, and report to you tomorrow what they may consider is best to do under the circumstances. I simply make this proposition.

The report of the secretary of the executive committee will be read in a short time. In reading no doubt he will say this: "That the executive committee has been blamed for not holding yearly conventions." I have seen this myself in certain milling papers. Let me say here that the millers themselves have always been referred to in this matter, and they invariably gave it as their opinion that there should be no convention. It has always been left to the members themselves, and most of them have been unwilling to hold a convention for the past two or three years.

Now, gentlemen, I welcome you all here, and must say that I am very glad that so many of our old friends are with us to-day. We will now proceed to business.

N. Ellis of Evansville, Ind., said: Mr. President and gentlemen—From what has been said, I infer that it is proper that an auxiliary committee be appointed, and I move that the president appoint such committee.

The motion was seconded by Homer Baldwin, of Youngstown, O., and carried.

Mr. Greenleaf, of Minneapolis, moved that a committee of five be appointed on nominations. The motion was seconded and carried.

The following auxiliary committee was then appointed by the chair: Messrs. Ellis, Ind., Urban, Buffalo, Crosby, Minneapolis, Arndt, Wis., Bain, Mo.

Mr. Bain said: "I move that we adjourn until 2 o'clock. My reason for this is that many come here to talk over old times, and besides I think we have done all that we can do at this session."

Mr. Seybt called the attention of the members to the fact that the Geo. T. Smith Co. extended an invitation to all the members of the convention, and he trusted that all would avail themselves of it, as the visit would be made pleasant and instructive. The meeting then adjourned until 2 o'clock p. m.

At 2 o'clock p. m. the meeting was again called to order.

The report of the secretary was then read and ordered to be placed on file. It was as follows:

Mr. President and Gentlemen: This is our tenth annual convention. Our last convention was held in this house June 26, 1883, since which time affairs of the association have been conducted by your executive committee. This committee has not been idle. It has held many meetings, and disposed of many troublesome matters.

(1) The Mechwart patents, which loomed up with considerable prominence, have been under consideration, and an arrangement entered into, or rather an agreement arrived at with the attorneys of Mechwart to the effect that when certain conditions are complied with on the part of the patentee, by his attorney, the members of our association are to be protected, for a consideration that will be perfectly satisfactory to you.

(2) Buchholz. The next claim to demand our attention was that of Gustave Buchholz, of Germany, who came to this country in his own behalf, to arrange with our association for a compromise of his claims for infringement. Mr. Buchholz had previously appealed to the German government for assistance and relief through their consul at Washington. In his appeal he represented that his rights were being infringed by the millers of America, and he was unable to secure protection except through the aid of his government. Upon the report of their consul, the German foreign office warned him of a strong organization of millers of the United States for defense against patent claimants, etc. The German government informed Mr. Buchholz that to secure what he demanded would be a task of great magnitude, attended with large expense and much uncertainty, and advised against taking any action in the matter. Mr. Buchholz, however, came to this country, consulted with prominent attorneys and claimed to have assurance of the value and loyalty of his patents to that extent that the attorneys were willing to take up his claims upon a contingent fee, litigate them if necessary, and collect the royalty. Before making any arrangement with his attorneys, he visited members of your committee, laid his case before them, and not receiving the assurances of relief and recompense he expected, decided to shake the dust of America from his feet and return to the "Vaterland."

(3) The next case requiring attention was brought to our notice by the millers of Wisconsin, inquiring into the value and rights of one Johnson, who was traveling through the state collecting a royalty of $100 from each infringer of his patent valve to a flour packer. He soon struck members of the association, who, referring to the secretary for advice and information, were advised to pay nothing, and as this device was put in by the Barnard & Leas Mfg. Co., the matter was brought to its notice, when it promptly replied that it "would defend the packers against this or any other claim for infringement." This ended Mr. Johnson's scheme of "collecting something for nothing."

(4) A number of millers in Illinois and Iowa appealed to the association for protection against claims of patentees on a "wagon or grain dump." This being a case wherein comparatively few millers were interested, but belonging particularly to corn buyers and elevator owners, your committee refused to assist further than to procure an opinion from their attorney, upon the validity of the patents, which opinion, being adverse to the patentee, was furnished to such of our members as used the device.

(5) In February, 1884, a decision was rendered by the United States court for the western district of New York, favorable to the claims of one Jebb, said claims being for certain parts of a sieve frame used in purifiers, and being infringed by the Geo. T. Smith Co. and others. Inasmuch as the compromise arrangement with the Geo. T. Smith Co. contemplates protection to the users of their machines, your committee instructed their secretary to enter into correspondence with the said Geo. T. Smith Co. for the purpose of securing a good and sufficient bond in the sum of $50,000 as a guarantee and protection to our members against all claimants under said patents. This bond was promptly furnished by said Smith Co., to the satisfaction of your committee, and is now on file in the office of the secretary.

(6) While our last convention of 1883 was still in session there were rumors of a second "Deuchfield patent" that would be hurled at us with such force that we would be taken by storm, and forced to fight or settle on short notice. This claim is known as the Roberts patent, or "wheat meal purifier." In bringing this claim before your committee the case was somewhat strengthened by the fact that a settlement had been arranged with E. P. Allis & Co., of Milwaukee, whereby certain mills constructed by them had been licensed upon this patent. Your committee, after a large and exhaustive correspondence through the secretary, decided to ignore the claims of the Wheat Meal Purifier Co., and if necessary, contest their claims in the courts.

(7) The next claim brought to our attention was that of S. M. Brau, of Green Springs, Pa., which he calls a "thorough process." This is another of those patents granted by the patent office through ignorance of the "state of the art," and which, could it be sustained by the courts, would cover every mill doing merchant work in this country. The owner of the claim is no doubt a worthy mechanic, laboring under the delusion that he has invented "a new and valuable process." He says: "I claim that all the roller mills in the United States are infringing my patent, and it is too valuable an investment to lie idle. If the courts sustain it, it is worth $1,000,000 a year for ten years." Your committee decided it better for all concerned that the owner proceed to perfect his patent by a decision of the United States courts, and establish a value for it.

Last, but not least, come the claims of Robt. L. Downton, of St. Louis. On the third day of April the executive committee, by previous arrangement, had a conference with Mr. Downton and his attorney in this city. No definite result was reached. A proposition for settlement with members of the association was submitted by the attorneys of Mr. Downton, which is held in abeyance to await the action of this convention, and it must be determined as to what course your committee will pursue at this meeting. It is not necessary to go into further details concerning this claim in this report, as the full particulars will be brought out during the discussion of the subject.

Bran Compressor: At the delegate convention at Cleveland in 1881 the association offered a reward of $1,000 for the invention of a machine to compress bran into such dimensions as would enable its shipment to foreign markets on a more economical basis than was done at that time. Inventors in this country and Europe have been at work upon the problem and many machines have been invented and presented either by model or in working form, but so far success has not been reached, unless perhaps by the machine manufactured by the Geo. T. Smith Co., of Jackson, Mich., which has not yet been examined by your committee, and also one invented by J. R. Lockwood, of this city. Owing to a fire destroying Mr. Lockwood's place of business, the completion of a full working machine has been delayed. The machine of the Smith Co. will be examined by your committee on their visit to Jackson this week. The correspondence in connection with this invention has been very large and extended, even to foreign countries, showing that the effort to secure such a machine as you require has been great. I have given you but a brief summary of the claims pertaining to patents which have engaged the attention of your secretary and the sub-executive committee since our last convention. Few of you realize the amount of work, or the constant watch that has been kept to protect the interests of the association and its members. Much of the business of the committee has necessarily been conducted, as some of our milling papers have seen fit to term it, in "star chamber." Such a course you can readily see is often absolutely necessary.

During the summer of 1885 our exporting millers were deprived of the rebate on jute bags exported with flour, by reason of certain obnoxious regulations of the treasury department, whereby the expense and difficulty of collection made it absolutely prohibitory. A meeting of the committee was called, at which a committee consisting of Hon. C. A. Pillsbury, of Minneapolis, and your secretary was appointed, and instructed to visit Washington for the purpose of securing such modification of the obnoxious regulations as would enable the rebate to be collected without

unnecessary difficulty or delay. Inasmuch as the matter had received the attention of brokers versed in the routine of the department, and prominent men from various parts of the country had undertaken to secure such modification without success, the committee of your association undertook the mission with some misgivings, but with the determination to succeed if success were possible. Suffice it to say that the result of our efforts exceeded our most sanguine expectations, a full report of which was published in the NORTHWESTERN MILLER of November 6, 1885. Other matters of importance have engaged the attention of your committee, and have in a certain measure proved beneficial, such as delays in transit and rules governing the export trade in flour. These rules are being adopted generally as the basis of transactions with European merchants, and will be further perfected from time to time. Your executive committee feels satisfied that they have done all in their power to promote the interest and welfare of the association, and trust their efforts meet with your approval.

Some discussion followed as to paying the expenses of the members of the executive committee from New York, when none from the other states received pay.

Mr. Hinds, of New York state, said that it cost a good deal of money for members to come on to the meetings, and they had to pay their fare, which was a considerable item of expense, while some were able to get passes for their members and themselves.

Mr. Seybt—It takes brains to get passes, and if the members of the executive committee did not posses a sufficient amount, their lack should not be visited upon the association.

Mr. Seamans said that only four or five members came to do the work of the entire association, and he thought it only reasonable that they should be reimbursed.

Mr. Bain—I move that hereafter each member of the executive committee, or sub-executive committee, be allowed his expenses when attending to the business of the association.

The motion was seconded and declared carried, Mr. Smith and Mr. Seybt voting in the negative.

Mr. Seybt—I trust that motion will not prevent some of us from paying our own expenses.

A Voice—No sir; no.

The chair announced that the next business in order was the reading of the papers.

Mr. Seybt then called Mr. Bain to the chair, and read a paper on "Exporting Flour," as follows:

C. H. SEYBT.

Milling, to all appearances, has ceased to be an art. Not many years ago the product of some mills had a worldwide reputation, because the miller was an artist in his way, devoted his whole time, his experience and his talents to the making of his flour, from the careful, painstaking selection of the wheat, until the finished flour was turned over to his commercial agent. In those times really fine flour was seldom overcrowding the markets, and the miller was sure of a handsome return for his conscientious, skilled labors. At present the art of milling consists in having sufficient capital to build a so-called modern mill, full of wonderful, ever changing machinery. The elevators furnish an unlimited supply of wheat. The mill is kept running day and night, and at the end of the year it is paraded to the world how many hundred thousands of barrels of flour have been manufactured, and with what business tact the miller has succeeded in getting rid of such an immense quantity of flour. Formerly the quality of the flour was the miller's highest ambition. Now it is the quantity. Money will buy the same machinery, money will buy the same elevator wheat, hence the flour which overcrowds our markets is practically of the same quality, and preëminence of particular brands is limited to fractional cents. Flour brands have almost ceased to have a commercial value and are often tolerated only by the trade to tickle the vanity of the miller.

Although large sections of our country have had wheat crops of very poor quality, nevertheless all mills are turning out the usual proportion of extra fancy flour, thanks to our wonderful mechanical devices and thanks to our wonderful elevator system, which has done so much to furnish to the milling world an unceasing stream of high grade wheat regardless of crops, "rain or shine." This commercial and mechanical development has in a few short years brought the millers of this country to a common level, so to speak. As money has become the main requisite for the manufacture of flour, it has brought about an immense overproduction in this country, and with it a fierce, competitive struggle for mere existence. Whatever money can accomplish in this country, can also be done in other parts of the world. Those foreign countries which have, so far, consumed our export flour, will soon be on a common level with us as regards mechanical excellence for the manufacture of flour. They certainly do not only have an even chance for our elevator wheat, but they have the wheat supplies of the whole world at their command. If foreigners can manufacture flour as well as we do, and can buy their wheat as good and as cheaply as we do, how long will they continue to buy flour from us?

It is not the purport of this paper to point out the relation the flour export has to our whole milling industry. A diminished export means still sharper competition in the domestic markets, and still smaller manufacturers' margins. A total stopping of the flour export would mean enforced idleness and complete ruin to thousands of millers. Every intelligent miller is aware of this.

Nor is it the intent of this paper to induce millers to enter the flour export business, or to instruct them in the intricacies and fine points of that trade. Many have made a success of it, many have failed—just the same as in all other undertakings, and so it will be in all times as long as honesty, diligence, prudence, patience, tact and intelligence are unevenly divided. Nor is it the object of this paper to show that our public elevator system, with its twin brother, grain speculation, is rapidly undermining the legitimate milling business in general and the flour export in particular. The elevator magnates not only determine the quality of our wheat, but also dictate artificial prices in such arbitrary ways, that flour prices have ceased to exert any influence on wheat values, as though there was no connection between wheat and flour. We millers ourselves are in a large measure responsible for this. We form a good sized contingent of that army of simpletons who rush into the vortex of grain speculation in the vain hope of realizing a fortune, and when we come to a stop finally, we resemble shivering sheep, shorn of our wool. Grain gambling is the worst and most foolish of all games of chance, because against the ringsters an outsider has absolutely no chance, and the effect of this species of gambling is destructive to all legitimate milling business. The innocent have to suffer with the guilty.

American flour is manufactured in a hot-house of speculation, and in what a chilly, sober atmosphere is it sold in the European markets? The thermometer over there hardly ever rises above zero. Only a full dose of experience will cure the miller of his folly. The elevator evil will correct itself gradually. It is "too good a thing" to last long, and autocratic powers are short lived in the present age. We ship and sell our flour to foreign countries, not by grade, but on the reputation of our brands, and that is the key to the whole flour export. The bakers of Great Britain, who have been our largest and best customers, buy the American flour for its intrinsic merit, for its characteristic qualities, certain brands for strength and body, and others for color, sweetness and finish. As long as we scrupulously maintain the character of of our brands, their individuality, so to say, that long will we have demand for them in foreign countries, and if our values are at the same time somewhat on the level of the world's standard, we really need not fear that foreign competition will supplant us in the flour trade. We must make it impossible for every miller in the Mississippi valley to manufacture high grade St. Louis flour, for every miller in the spring wheat country to turn out so-called Minneapolis patents. We must prevent foreign millers, who have access to our seaport elevators, from being able to duplicate our brands, or to offer an acceptable substitute. Carefully selected wheat, grown under the same climatic condition, nurtured by the same soil, will make good flour of never varying excellence. Such flour will always be in demand at good prices, especially in Great Britain, were flour is scrutinized by systematic, analytical tests. No purchaser there can be fooled by a mere "matching" on a little board 3x8.

The ordinary elevator wheat is started in iniquity by the average country shipper, who will ingeniously manipulate a car load destined for the elevator until it will just scrape the inspection mark. We all know that the elevator magnates employ artists, whose skill is devoted to further improve on the shipments from country points, and after such wheat has passed through several elevators, it is ready for the world's market in all its glory. Such product of elevator art contains a judicious mixture of good, bad and indifferent, a harmonious blending of Northern fall, Turkey, Clawson, Fultz and of all other wheat varieties, grown south or north, on hillside or prairie. Flour made out of such a compound must necessarily be of indifferent intrinsic merit, no matter how much mechanical skill is displayed in its manufacture, while exporters of such flour have only themselves to blame if they encounter markets chronically overstocked and depressed. In this age of steam power and mechanical force, the world is overrun with all manner of goods of the chromo type. For want of a better illustration, one is tempted to compare our present method of milling and marketing the flour to the chromo industry.

To sum up, we can only maintain our flour export by relying less on our machinery, which is common property, than on a careful selection of the wheat. We must abandon the self delusion that foreign countries will clamor for flour manufactured out of our elevator wheat, or its kindred, which is also common property. Our export flour must contain the characteristic qualities which the wheat grown in the different sections of the country is renowned for. The more independent we make ourselves of the elevator influence, the more will the flour export prosper, and the less we have to do with grain speculation, the better for us, our families and our business. As a parting admonition, let every miller in this broad land adopt this motto: Whenever home prices will not permit export, pull in sails! breakers ahead!

C. M. Palmer, editor of the NORTHWESTERN MILLER, was called upon to read a paper on "Milling Economics," as follows:

Contrary, perhaps, to expectation, I shall have very little to say about the economies of milling—those small details of manipulation which make a difference one way or the other of a few cents per barrel in the product of the mill. I take it for granted that all who listen to the reading of this paper, or all who may deem it worth their while to read it, are beyond the stage where I am able to instruct them in these matters. If such is not the case, they undoubtedly are out of their element and should seek some other line of business. It is only of the state of the trade in general, its relation to other lines of commercial industry, its domestic and international conditions that I would speak; and what I have to say will not long occupy your attention. It relates principally to the accomplishment of a few things, which may be summarized as follows: The cheapening of wheat, the lowering and equalization of freights, the protection of brands and an improvement in the method of selling flour and offals.

From this outline it will be seen that I propose to address you as business men, and not as craftsmen. The contrary seems to be the rule among contemporary writers in addressing what they term the milling trade, and ten years ago they would probably have been right, for ten years ago milling was looked upon rather as a trade than as a business. Of course there were a few striking exceptions to this state of things, but in the main the miller was a man who made flour with his own hands, by the skill of his own brain and made it in small quantities as compared with the production of the average mill nowadays. His principal thought, when he considered the interests of his mill, was how he could improve the quality of his flour, what machinery was best to use, what numbers of bolting cloth were best adapted to making separations, and what these new fangled purifiers, which were then first being talked about, amounted to, anyway. Of the rolls, he had scarcely begun to think at all. The question with him always was how he could make better flour than somebody else, or better flour than he had been making the year before. Now the situation is changed. The miller is a manufacturer of flour by the aid of skilled help and perfect machinery. He does not necessarily enter his mill once a week, but confines himself to his office and depends upon the best labor obtainable for the technical development of his business. His business is primarily and secondarily the selling of flour and the buying of wheat. (I place the two operations in the reverse order advisedly. For some time past those millers have made the most money who have first sold the flour and then bought the wheat from which to make it.) All that we have to consider now is how to make money—or perhaps I should more correctly say, how to lose as little money as possible. The art of making flour has almost reached the stage of perfection, and in it are engaged many laborers of the highest skill. It is possible to secure a miller of sufficient skill and judgment so that the entire workings of a large and complicated mill may be left entirely to his care, and his work be judged by results from day to day. In no other business has the manufacturer such a satisfactory check on his foreman as has the millowner. From week to week, almost from hour to hour, it is possible to know just what grade and what proportion of the different grades of flour are being turned out, and just how much raw material of a certain cost is being used to produce them. The modern and systematic flour manufacturer therefore has a complete check upon his miller, and need not be imposed upon for one day, if the miller does not understand his work, or if understanding it, for some reason does not put his knowledge to practical use.

We have first to consider how wheat may be cheapened—for the reason that milling at the pre-

sent time is not more profitable is not that flour is too low, but that wheat is too high. This is not paradoxical, although it may sound so. Flour, like every other product, has found its level; it is made in thousands of different mills in all parts of this country and in almost all others, and is well and economically made. Naturally its normal cost is that of the normal value of the raw material plus the cost of manufacturing and a reasonable manufacturer's profit. There are no secrets about it, and even if it were desirable, no adulteration is possible, because of its exceeding cheapness. With the milling capacity of the world greater than any possible demand for flour, it is evident that under all ordinary conditions of trade no fancy profit is possible. The most that can be hoped for is that the trade shall yield a fair profit and be kept from sudden fluctuations, and the periods of great depression that are so enormously expensive to those engaged in it, and which are almost entirely the result of speculative advances. These booms are made possible by the ignorance of the great body of Americans of the true relations of this country to the markets of the world, and of the size and importance of the competition which it has in the business of wheat growing, and which render it possible for shrewd speculators to persuade ninety-nine out of a hundred that because we have a short crop in a few states, gaunt famine stares Europe in the face, and that to be rich it is only necessary to buy and hold. It is the fashion to laugh at Indian competition, to sneer when the great Russian wheat fields are mentioned, and to gibe derisively at those who have anything to say about the large supplies of wheat and even flour from such far off regions as Australia, Persia, China, Africa and the South American states; but just the same these competitors exist and are growing stronger day by day. The value of wheat as a crop for opening up a new country is beyond that of any other grain, providing it is possible to grow it on the soil of the country. It can be planted on newly broken ground and tended and harvested with less labor and meets with more ready sale at some price than almost any other cereal that can be mentioned. We have seen the enormous development of our country in the western and northwestern portions and the provinces of the Canadian northwest, not one-tenth of which would have been possible without the use of wheat as a staple crop. In Australia, India and Africa, and the other countries mentioned, there are vast fields either entirely uncultivated at the present time, or if cultivated at all, in such a manner and with such crops as will not long pay the cost of production. It is inevitable that as long as there is a sale for wheat, these places will produce it, unless it can be succeeded by a surer growing and more profitable crop. With all these countries, in many of which labor is exceedingly cheap, America has to compete. She is no longer the main dependence of Great Britain and the continent as a bread producer, but has many rivals. They are all against her from first to last. It has been conclusively demonstrated that we do not control the wheat markets of the world, and that we cannot get our own price for our crop by holding it back and starving the European consumer. We must, therefore, if we would mill profitably, buy wheat cheaply, and this we can not do if nine-tenths of the trade are always bulls on the situation, and therefore busily engaged in putting up the price on themselves. This is dangerous ground, however, and I will leave it as I feel it trembling beneath me, only saying, as I withdraw my daring foot, that the miller, as the consumer of the raw material, has it in his power to make the price. If he does not take it, who will? Of what value is wheat if not to grind? If the milling trade entirely refuse to buy wheat next season, how many more bushels will be taken for export than have been taken this year?

Next in importance is the great freight question. During the year 1885 the tariff rate on grain and flour between Minneapolis and New York was changed nineteen times, and ranged from 25 to 42½ cents per 100 lbs. This does not take into account innumerable cuts of a more or less private or temporary nature, or any of the complications attendant upon a transit rate. From St. Louis, Milwaukee and Chicago the changes were quite as numerous, and the fluctuations in some cases even more violent—as they have been from Minneapolis since Jan. 1, 1886. The danger in selling flour ahead at a prospective profit of perhaps 10c per bbl when freights are liable to be advanced 15 or 20c per bbl without warning, is obvious. But to mention the evil without pointing out a remedy is useless, and therefore on this head I shall speak but briefly. Without attempting to discuss the Utopian dream of governmental ownership and control of all railroads, the good effect of which, should it ever be brought about, is problematical, it may be said that millers, as among the very largest producers of freight, can do much to keep rates uniform, which I think is fully as desirable as that they should be low—provided always that the rates are equitable. The disastrous effect of the rate slashing contests which have been so frequently indulged in is well known to you all. The spectacle of markets flooded with consigned flour, of buyers persistently holding off even when rates are at a merely nominal figure in the hope of still further reductions, is too familiar to all merchant millers to make it a pleasant subject to discuss.

The protection of mill brands and their more extended use is a hobby of the writer's, upon which he has probably written several hundred pages, and thus far, he must admit, with but a small show of practical results. Still, it cannot be denied that millers as a rule pay more attention at the present time to their brands than they did a few years ago. As a gentleman of ability and practical experience is announced to address you on the subject of "Flour Brands," it is unnecessary for me to enlarge here upon this matter, although any essay upon milling at the present day would be incomplete without some reference to the necessity of confining the product of the mill to as few brands as possible, and making sure that those brands will become familiar to the consumers of flour. It is not sufficient that the man who buys the flour at wholesale and sells it at retail, or the commission merchant, should know where the flour is made; the end to be sought is that every consumer of a satisfactory package of flour should know exactly where it is made and by whom, in order that if he likes it he may be able to procure more of the same brand, even if the retailer from whom he purchased it is not handling the flour when he goes to obtain another supply. It is this demand from consumers that makes the reputation of the mill of value. I believe I do not place the figures too high when I say there are several brands of flour now made in this country that are worth to their owners from $100,000 to ten times that sum; that is, that they each year pay in increased sales or in an increased price obtained under the certain brand, a fair rate of interest on the capital mentioned. It will be readily seen that if the miller can create such a valuable piece of property as this, without in any way hurting his business or decreasing the amount of business done, and with very slight expenditure, providing it is made in the right direction, it is highly desirable that every miller who makes a satisfactory grade of goods should take a great deal of care to establish himself in the markets under his own name. The miller must select a good brand, one that is not used by any one else, copyright it, and then insist upon putting it upon every barrel of flour of that grade which he sells.

The desirability of having as few brands as possible is very great. The business of selling flour is approaching the methods used in disposing of any other manufactured article. Advertising is necessary, and without judicious advertising it is very difficult to create a brand having any great intrinsic value. I say this not because I am in the advertising business and have that commodity to sell, but because it is obviously true. The leading firms of the trade have found it to be so, and are practicing it and find their profit in it. I know that many large millers are spending from three to five cents in advertising for every barrel of their output, and this expense is being increased rather than diminished. It is thus that great public reputations are made, and in this age when advertising is almost the soul of business, it is useless to attempt to make your brand pay you an income unless you make the public so familiar with it that they call for it instinctively without stopping to consider what to ask for or whether a dozen other makes of flour may not be quite as good—which they undoubtedly are. Therefore I say, confine yourself to but few brands. It costs three times as much to make three of them household words as it does one, and your money or your courage may give out before you get the three established, when you may possess quite enough of both to establish the one, and in advertising you can not put your hand to the plow and look back. If you stop it before you have accomplished your purpose, ninety per cent of your expenditure is wasted.

The doctrine that our exports of wheat should be in the form of flour is not new, but is none the less true and it is approaching realization year by year. The necessity for a bran compressor is more and more apparent as this end is more eagerly sought. We cannot afford to mill our whole wheat crop and sell all the offals at lower prices than they are worth in European markets; and to get them into those markets successfully, they must be compressed into the same bulk occupied by wheat and flour, and thus be transported at the same low rates of freight. This need was recognized by the Millers' National Association some years ago, and its offer of a reward of $1,000 to the inventor of a successful bran compressor has been productive of considerable experimenting, some of it showing very good results. But the highest class of inventive talent has not yet undertaken the solution of the problem, and it probably will not until the demand for a device of this kind is more generally expressed by the trade at large. I have recently received a communication from a gentleman sent by one of the leading London newspapers into Ireland to investigate the causes of the great depression in agriculture existing there. He attributes a large portion of the present dullness in stock raising, the chief industry of the country, to the fact that heavy imports of American flour have closed a large number of the mills, and thus deprived stock growers of the cheap food for their cattle which mill offals had formerly furnished them. It is evident, therefore, that if we would keep these mills closed, we must send more of the offals as well as the flour. The demand exists beyond question, and it is only a matter of cheap package and low freight. These the natural tendency of the times must soon bring us, and the American milling trade will have gained a position in advance of that which it now occupies, and a trench nearer the citadel which we must capture.

In this connection is a matter of more immediate importance than the building up of an export trade in bran. I refer to the desirability of our encouraging the use of bran as a food for cattle and horses in this country to a much greater extent than it is at present used; a use which I think will be found upon experiment to be fully justified by the result. About two years ago I was able to bring to the attention of the trade the experience of two prominent millers, one of Illinois and one of Minnesota, in the use of bran as food for working horses, their conclusion being that horses would stand heavy work and gain in flesh when fed only with hay and wheat bran. A few months ago I was able to present some facts regarding the use of bran instead of corn in fattening cattle and the matter has again been called to my attention in that connection by Mr. Crosby, who has just returned from Topeka, Kan., where he is interested in a milling concern. He there met Gilford Dudley, a prominent stock grower of that city, who has been experimenting for three years past with bran as a fattening food for cattle. Mr. Dudley's experience, and I am assured by Mr. Crosby that he is a careful, conservative, close figuring business man, is that, weight for weight, new process wheat bran, cleaned as closely as the best milling appliances are capable of doing it, is equal to corn meal for fattening cattle for market. It should be borne in mind in this matter that the bran should be compared with other foods weight for weight, not bulk for bulk. Where 20 lbs of corn meal are given, an equal weight, say about a bushel basket, of bran should be fed, which can be done at a saving of from 30 to 50 per cent.

As to the result of such feeding I have here copies of two letters from Mr. Dudley, obtained for me by Mr. Crosby, which I will gladly furnish to all who may desire them and which will appear for the second time in the current issue of the NORTHWESTERN MILLER. Mr. Dudley's testimony (and remember that he is a plain, practical business man, figuring not for fancy results but to make a profit,) shows that different lots of steers fed on bran and prairie hay made the highly satisfactory gain of 60 lbs the first month, 78 to 87 lbs the second month and in one case at least the enormous gain of 140 lbs in 30 days. What gives value to Mr. Dudley's experiments is that he uses and prefers the bran from the best class of roller mills, and as free from flour as it is possible to make it. We all know that as a milk producer bran stands high in the estimation of practical dairymen, but what we propose now is to increase its consumption very largely by demonstrating its value as a flesh former. Without going into the chemical features of the question, (some of which are indicated in Mr. Dudley's letters,) in search of a reason for the value of bran for this purpose, let us practically test it, every miller in his own neighborhood, and see if it is not possible to create a larger demand for it here at home, and still have the great foreign market in reserve. We shall thus increase the material wealth of the country, and if we succeed in increasing the demand for bran only enough to raise the price two dollars per ton, we shall benefit the milling trade to the extent of about $4,700,000 per annum, a sum sufficient to pay an annual profit of about three and one-fourth per cent on the entire capital invested in the milling business according to the census of 1880.

A. B. Kellogg took for his subject "Bolting Cloth," as follows:

Mr. President and Members of the Millers' National Association:

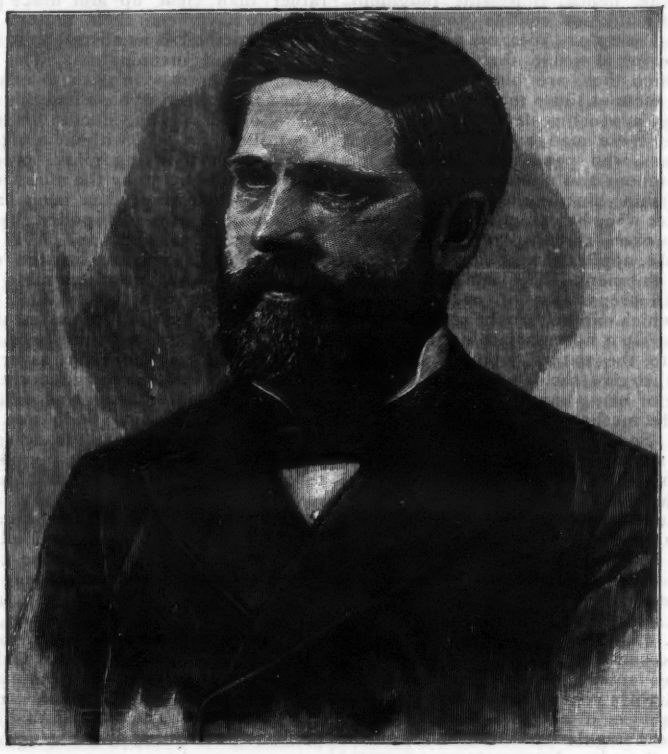
There are several reasons which induced me to accept the invitation of your honorable executive committee, and address you on the subject of bolting silk. First, in my judgment, far too little thought and attention has been given to this most important factor in the art of milling, and hence, such a golden opportunity for doing what lay in my power toward stimulating you to a broader, better and more comprehensive understanding of the subject, was one not to be lightly regarded. I am also glad that while laboring to accomplish such a worthy purpose, I am able to do a little missionary work in the direction of removing some prejudices and correcting some misunderstandings which have for many years taken hold with wonderful tenacity of the minds of some of our millers.

I am free to admit that there are oth-

ers much better qualified and fitted for this task than myself, but the fact existing that they have not, for a reason which can only be surmised, availed themselves of similarly offered advantages, leads me to offer no apology for what I shall have occasion to say. Neither do I deem it necessary to offer any excuse for disregarding, to a certain degree, the scientific aspect of the subject, and endeavoring to treat it in a plain, practical, common sense manner.

These days of close milling bring with them an earnest desire to pursue still further the study and investigation of every detail connected with your art. Little matters, which, when your books showed a profit of two dollars per barrel on your flour, were wholly ignored, now come up before your eyes with a serious clearness and force, demanding your undivided attention and study. Then, it mattered not whether you used a ten or a fourteen hoop barrel, or had any special transportation advantages, for you were too busily engaged filling your orders, which covered such healthful margins as to render any great amount of thought on these minor matters unnecessary. Now, however, times and circumstances are different, and these pressing days of close milling are impelling you to the strictest examination of every detail connected with your art. The debit and credit sides of your ledgers are getting uncomfortably close together, and the once despised little things of your milling operations are driving you to their study. The miller who now holds a thorough mastery of milling details, is the one sitting the highest in the synagogues of profit and success. Surely the times have undergone a great change. Now you find yourselves prodding through the good, bad and indifferent milling literature, nosing around in the endeavor to ascertain what your neighbors are doing, and regretfully lending a willing ear to the oily tongued traveling advocate of some new milling appliance, all with the hope of better equipping yourself for the stinging competition you encounter, cheapen the cost of producing your flour and improving its quality. There are now no liberal margins for experiments; every turn of every wheel in your mill, every drop of oil, every ounce of coal must count and have a silent vote when your yearly figures are gotten together. The days of guess work have passed—you are now working in the hours of unquestionable certainty. I am sure a thoughtful consideration of the subject will disclose the fact that we have not made that progress in bolting which is to be found in grinding and purifying. It is therefore from this latter source where we must look for the most marked improvement, which will bring the art to a still higher degree of perfection. Bolting silk will play a most important part in that improvement, and therefore anything which will have a tendency to open wider our eyes of investigation, pursue methodical lines of thought, and with an honest, spirited and sincere desire to pry down into hitherto unexplored regions, however feeble, should have our most hearty approval. I am aware in opening up a discussion of this subject I am running the gauntlet of adverse criticism, and subjecting myself to the scowls and frowns of those who may chance to have their toes trodden on, but this will not deter me. For some unexplained reason, quite likely a fear of a too great familiarity breeding contempt, the policy of some manufacturers and dealers in bolting silk has been to surround the art with an air of mystery. They seemed to be inspired with a special commission to keep the millers as much in the dark about its manufacture as lay in their power. They would have its users believe there were certain secrets entwined in its production which were not necessary to know. If the miller wanted any silk he paid the price asked, and that was supposed to end the transaction.

Aside from an enormous margin for the manufacturer and dealer, it is not easy to assign any reasonable cause for such a policy. But as long as there were such glittering profits it was not to be expected either would go out of the way to part with any information connected with its manufacture that would enlighten the mind of the consumer. Within the past few years, however, new firms have engaged themselves in its manufacture, and in reaching out for a foothold have engendered a spirited and bitter competition. The effect of this has been not only to demolish fancy profits, but has created a desire for less mystery and a more general understanding of the whole art. During the period when our country was supplied by only a few firms, which period might very appropriately be called the dark ages of bolting silk, almost fabulous prices were paid for bolting silk. It is probably within the recollection of some here to-day when each size brought its equivalent in gold dollars. An old millwright remarked to me the other day that he once used book muslin rather than pay $11 per yard in gold for a No. 11 silk. There are no secrets in the manufacture of bolting silk worth classifying as such, and there is no



A. B. KELLOGG.

good reason why the good, clean, broad, pure daylight can not be let down into the subject, and our millers see all that is of interest to them. Some manufacturers claim, and undoubtedly possess, certain incidental advantages, but they are such as are within reach of others who care to possess them.

The culture of silk has been before the world for thousands of years. Scarcely a nation within the boundaries of the temperate and tropical zones but what has at some time attempted its culture. China leads off thousands of years before the Christian era with its culture well advanced. France, England, Spain, Portugal, Russia, Turkey, Sicily and nearly every country of any importance on the eastern hemisphere have at times expended large sums of money, and given the art special protection with the hope of building it up as a permanent industry. Force has at times been resorted to, to obtain knowledge from the eastern countries, and the most subtle and persistent efforts made to carry off its secrets. In our own country as far back as 1654 can be traced endeavors to establish silk culture in the states of warm climates. The industry has grown and subsided at intervals as men would become enthusiastic and cool off. While silk is at the present period quite extensively grown in some portions of the United States, I have failed to find any weaving of it for the purpose of bolting. The slow tedious process, low priced labor, water containing special properties, and quality of raw material produced, tend to keep this from securing a foothold here. Previous to the manufacture of bolting silk our millers were compelled to use woolen cloths, muslins, wire and similarly constructed materials with which to perform the then limited bolting operations of their mills. The bulk of this woolen material came from England, but owing to the revolutionary war the supply was entirely cut off, and other means to supply the deficiency were adopted. Up to this period, the manufacture of wire cloth was in a decidedly crude state, and while answering the purpose of a coarser bolting, fell far short of giving satisfactory results. A comparison with the present condition of the wire cloth trade, and as it then existed, presents a most interesting and instructive spectacle. At that time no method was known for preventing rust and oxidation, a most valuable and important agency in its preparation.

During the war of our independence, our supplies of wire cloth having been summarily shut off, our millers had to look elsewhere for a proper substitute. Germany and Holland gallantly came to the rescue and supplied the deficiency. The traffic in bolting silk since that day has gradually increased, until it has reached astonishing proportions. As our mills grew more numerous and were improved, the demands for bolting silk more than kept even pace with it, and it is not a hazardous remark to make, that the world owes the present high state of the art of making bolting silk to the demands and incentives given it by American millers. The importations for the past sixteen years have been as follows:

1870	$ 140,352	1879	$ 254,684
1871	119,811	1880	372,227
1872	125,203	1881	329,289
1873	111,554	1882	359,584
1874	155,815	1883	418,711
1875	199,779	1884	396,153
1876	179,826	1885	287,476
1877	193,740		
1878	240,863	Total	$3,844,667

The introduction of silk culture into Europe came about in a most interesting and peculiar manner. Up to the beginning of the sixth century, China had monopolized the entire knowledge of the growth and management of the silk-worm, and the utilization of its product by converting it into fabric silk. For centuries she had extended every facility to further knowledge concerning it, and had thrown around it such protection as effectually prevented the art from being carried outside of her borders. Her emperors and empresses familiarized themselves with every detail connected with the industry and enacted stringent laws regarding its culture. So zealously had she guarded the secrets that not until the appearance of the year 550 did the attempt to wrest this knowledge from her prove effectual. Previous to this many heads had tumbled into the executioner's basket because they had been detected in spiriting away the silk-worm eggs. About this period two Persian monks were dispatched to China to establish a mission. Bright, intellectual, chubby-faced "gentlemen of the cloth" they were, such as possessed a love for the arts and sciences as well as the dissemination of the gospel. In the course of their labors, their eyes beheld the wonderful operations connected with the rearing of silk worms and the handling of the delicate threads. So entranced were they with what they had seen, and so impressed with its importance, that they immediately returned to their native country and related the interesting process to their king. The latter at once commanded their return, and offered a large reward if they would succeed in capturing some of the eggs. For two long, weary years they patiently waited, until in 552 they succeeded in bringing to their sovereign ruler, concealed in hollow canes, enough of the eggs of the silk-worm to constitute them, what they veritably proved to be, the progenitors of all the silk-worms produced in wide Europe. The art spread with wild-fire rapidity until France, Belgium, Italy and contiguous countries were saturated with the desire to number it among their industries. With the exception of Spain, France and Italy, it can not be said that any country has succeeded in accomplishing much in this direction. In these countries, however, and particularly France and Italy, the growth and culture of the silk worm has settled down to a most decided permanency, and it is from them comes nearly the entire product of raw material from which your bolting cloths are made. The peculiar nature of the climate, and its adaptability to the growth of the mulberry tree, the food of the silk-worm, doubtless accounts for this condition of things.

In one respect, our industrious little friend, the silk-worm, has a most marked advantage over mortal man, which in this dyspetic age can not fail of appreciation. It has two separate and distinct stomachs. Nature has placed in these cavities two miniature spindles, wound around which is a yellowish, transparent gummy substance, known as the embryotin silken thread. When ready to spin, this material is ejected in equal quantity from each cavity, through the mouth, and by the agency of two hooks brought together, hardened as it reaches the air, and forming a single filament. Finding a suitable place to rear its silken house, our royal friend spins thin irregular threads for the superstructure of its dwelling. Within this, during a period of from three to five days, working from the inside, it completes the cocoon. The outer material is called "floss silk," cannot be reeled, and is seldom used for bolting silk purposes. The delicate silken filament forming the cocoon is accompanied by a certain portion of natural gum, which gives strength and consistency to its texture. This gummy substance is never entirely eradicated from the silk, its presence being an absolute necessity to the working quality of the material. Not a yard of bolting cloth exists without this gum, although it is more or less lost by subsequent processes of sizing. If left in its dwelling for a short period the insect changes

its nature to a moth and takes immediate steps to escape, by working its way out at the end of the cocoon. Such cocoons are called perforated, and owing to the threads being separated, are useless for reeling. The cocoons are now assorted, the pure white and various shades of yellow being separated from the spotted, double and perforated ones, and by exposure to the sun or an equivalent of artificial heat an end is put to the animal life which has so well performed its delicate work. This process is one requiring the greatest care, in order not to impair subsequent operations.

Now commences in sober earnest that which determines whether the silk used in your bolting cloths shall be good, bad or indifferent. Any dereliction of duty, carelessness or ignorance of recognized principles has a most material effect on the quality of the product. The floss silk is now removed and a handful of cocoons placed in a basin of hot water for the purpose of preparing them for reeling. A gentle touch of a brush soon gathers a thread, which is passed to a slowly turned reel. The time and distance is sufficient to harden the filament, preventing adhesion to other threads. The operator knows that due care must be exercised in not only the selection of the cocoons, but in keeping the proper temperature of the water, regularity of threads, and a general cleanliness during the entire process. Broken threads must be mended, knots avoided, and a careful supervision constantly observed. A short period for drying, and subsequently tying into a hank, prepares it for the usual marketable form and for the thrower.

Before raw silk is used for bolting cloth purposes it is either converted into singles or "organzine." The former is simply the result of twisting, not too tightly, together one or more threads, which prepares it for the "weft," or "shoot," of bolting silk. By the aid of a glass you can readily determine the difference between this and "organzine," which is used for the "warp" of bolting silk. "Organzine" is the uniting of several threads by twisting them, especially to give the threads great strength and firmness. In appearance it is similar to small ropes, and on it hangs the quality of the bolting silk. Throwing and spinning, the two following operations, are most important in the process, to which great care and attention is given. The machines employed, although constructively simple, are such as to require much skill and judgment in use. The object is to twist each individual thread, to give it compactness and strength, preparing it for combination with other threads as occasion requires.

Although France has an excellent reputation for its spinning mills, it is conceded by all good judges that Italy is entitled to claims for superiority. In this country there are but eight mills worthy of special mention. The best organzine in the world comes from these mills. They have studied diligently the requirements of bolting silk and have been able to attain a high degree of perfection. They have had years of experience, have tried and trusted surveyors who are skilled experts in silk in every form. The manufacturer now puts in an appearance to buy such stock as will meet the wants of his trade. Upon his judgment largely depends his success and reputation. Up to the present point, you will observe, the manufacturer is comparatively voiceless in this work and is dependent upon others for what he receives. If now he selects a first class silk, that which will fill all the known requirements, you are likely to be in safe hands in dealing with such an one. An indifferent, cheap constituency will influence a manufacturer to select that which has been discarded by his more worthy competitor. The silk is now dealt out to the weavers, who must be watched during every stage of their work. The looms are usually set up in cellars with cemented floors, having low windows at the top. Not infrequently they are to be found in caves dug in at the sides of hills, placed on floors under which is water. One of the necessities to weaving is a moist atmosphere. In these rooms and caverns are to be found at times several looms operated by different members of the same family. The greater portion of these weavers are located within a space of a hundred square miles, and from them is obtained the world's supply of bolting silk. The weavers are paid so much per yard for their work, and are only able to weave about a yard of a No. 14 silk per day, and other numbers in proportion. Not a manufacturer owns a single loom, and you may find the poorest and best goods on the market woven in the same room. The weavers can work for whom they choose, but being subject to a constant inspection, prefer to work for those lax in passing upon their work. Some weavers, by nature, are more skillful than others, but all require daily watching to see that the reeds are kept clean, broken threads repaired, and good workmanship maintained. Again the state of weather, humor of the weaver, and many other contingencies enter into preventing a most perfect regularity of weaving. Thus you will find variations, sometimes material, in a few yards of silk, and hence, in passing judgment, you should not confine yourself to a limited sample. Weavers are constantly aspiring to weave the finer numbers, for which they are better paid. This leads them at times to go beyond their ability, producing defective work. As a rule, these men are skilled, patient laborers, who spend their lives in this monotonous and uninviting work. After finishing his piece he brings it to the finisher who, by competent help, mends the broken threads, properly washes the silk, applies the sizing, and prepares it for shipment. The sizing is simply a certain preparation of ordinary gelatine which can be bought at the village shops. It is necessary to use it in addition to the natural gum of the silk worm, to give the fabric a stiffness capable of being handled. Its over use fills the meshes and prevents free bolting. Some manufacturers claim to have some special gelatine preparations which give this stiffness without weighting the silk.

The selvedge of bolting silk is generally a good guide to determine its quality. Nine times out of ten you will find in an inferior brand the selvedge rough, uneven, irregular, full of hills and hollows, and of a careless ragged, appearance. All this indicates the haste and carelessness of the weaver. All selvedges should be firm, white, closely and tightly woven, and have an edge as straight as if cut with a knife. This shows a regularity in the shots of the weft threads. During every process I have here described, there must be a constant and rigid inspection to insure satisfactory work. Eternal vigilance is the price of a first quality bolting silk. Some manufacturers may say that they do not encounter defective weaving, hence have no broken threads, uneven selvedge or irregular meshes. Such statements are as unwise as ridiculous.

Gauzes were first wove in France. The art afterward found its way into Holland and Germany. At Harlem, at one time, the industry had assumed large proportions, but the climate and other circumstances combined to drive the business into Switzerland, where, for over half a century it has had a supreme reign. Besides, the Dutch could not weave finer number than nine, and the improvements in milling called for much finer sizes until it reached a number eighteen, having 31,684 meshes to the square inch, which, I believe, was first woven by C. Schindler-Escher, of Zurich. Subsequently a number nineteen and twenty appeared, having 36,100 and 40,000 meshes per inch respectively.

The numbers of grit silks are supposed to represent the number of threads per English inch, but an investigation shows unwarrantable and misleading practices, which should condemn the best brand made. A certain manufacturer sent me his samples of gauzes with a particular request to examine and report upon their merits. I found the following result:

Card size,	16	18	20	22	24	26	28	30	32	34	32	33	36	38	39
Actual count	16	18	19	21	23	24	27	29	29	32	34	36	38	40	42

and similar variations in the higher numbers. When taken to task for such a practice, he said, "oh my gauzes count three less threads all through," which you will see is erroneous. Now what is the result. Should a miller order a No. 36, he finds himself in possession of really a No. 33, and to prevent any possible error he is compelled to order without regard to card number, but by what he wants the silk to actually count, and this I should by all means advise him always to do. Is there any common sense in such a state of things? Certainly not.

Turning our attention to the regular silks, we find a similar chaotic condition of things. I believe if the 24 numbers had been shot out of a gun they would have given us a better scale than now in use. The numbering of the standard, extra and double extra qualities have always been an arbitrary matter, and reveals the whims which manufacturers sometimes take into their heads. Anything to perplex, mystify and tangle up, rather than clear up and make plain, seems to have been their policy. The present method is as absurd as it is unscientific and meaningless. The composer Hayden in writing the overture to "The Creation" must have had this numbering of our bolting silks in his brain. No miller can tell, without a vigorous use of the magnifying glass, precisely what he is buying by the numbers ordered. Much misery has been caused and many reputations spoiled by this unsystematic method, and it is high time some reform was insisted upon. I sincerely hope your honorable body will not adjourn without having taken some action looking to the establishment of some uniform and permanent system. I have had many assurances from dealers and one manufacturer that such a step would be wise and welcome. Practically speaking, we do not know to-day what a No. 7 silk is, so various are the ideas as to the number of threads. It may seem a small matter to us where the variance is but two or four threads, but they have matters figured down so fine over the pond, that they can see the effect at the end of their year's business by slipping them out. It is one form of pilfering, and in the neighborhood of such a man, were I as rich as Crœsus and had my money all invested in smoke houses, I should not expect nightly repose without a consciousness that all the doors were securely locked. The following table will be found interesting and instructive:

NUMBER OF THREADS PER ENGLISH LINEAR INCH.

Number.	Charles Dufour.	Schindler.	Hornberger.	Egli & Sennhauser.	Reiff-Huber.	Heidegger.	Pestalozzi.	Stallmann.	Hohl & Preissig.	Latimer Brand.
0000	18	18	18	18	19	18	18	19	18	18
000	22	22	24	22	25	22	22	24	22	22
00	28	28	30	28	30	28	28	29	28	28
0	38	38	40	38	40	38	38	39	38	40
1	48	48	50	48	50	48	48	50	48	48
2	52	52	56	52	55	52	52	56	52	52
3	56	56	60	56	60	56	56	58	56	56
4	60	60	64	60	64	60	60	61	60	64
5	64	64	68	64	68	64	66	66	64	68
6	72	72	76	72	76	72	72	75	72	72
7	80	80	84	80	84	80	80	80	80	80
8	84	84	88	84	88	84	84	86	84	90
9	94	94	100	94	100	94	96	98	94	100
10	106	106	112	106	113	106	108	109	106	110
11	114	114	120	114	119	114	116	117	114	120
12	124	124	126	124	125	124	124	126	124	130
13	130	130	132	130	132	130	130	130	130	140
14	139	139	140	139	144	139	139	139	139	150
15	148	148	150	148	150	148	147	150	148	160
16	156	156	160	156	160	156	157	157	156	170
17	163	163	168	163	170	163	----	165	----	180
18	167	178	172	180	180	----	----	----	----	----
19	170	----	----	190	----	----	----	----	----	----
20	173	----	----	200	----	----	----	----	----	----

It doubtless will surprise you when I state that some dealers positively refuse to have made public the number of threads of their various sizes. Such narrow-mindedness and short-sighted business policy is worthy of an existence only in the dark ages. An examination of the table reveals almost an unanimous sentiment that a No. 0000 silk should count 18 threads, but from this size up, the wildest scattering seems to prevail. The table is worth preserving for reference, in order to inform you what you may expect in the event of your changing the brand of silk you use. It is not safe, however, to expect to receive what you order, for cases have been known where dealers have stamped a No. 9 silk No. 10, relying upon your ignorance to cover the fraud. I am aware of the difficulties in the way of making a piece of bolting silk in which the count will be uniform throughout. Human skill has not attained that degree of perfection as yet, but there is no excuse for such unlimited, unreasonable and senseless methods of numbering silks as now exist. Why did not the manufacturers increase the sizes by some mathematical system and order? The present methods have been in use so long and millers have been so easy in swallowing everything put before them, that the pernicious systems are truly deeply rooted, and it will require a greater effort to bring about a reformation than it would years ago. That it can be done is not to be gainsaid, and it is to the credit of a few manufacturers who have signified their perfect willingness to incur the nccessary expense in changing their looms in order to bring about a uniform system, which will have some common sense for a basis. To further emphasize the condition of things I have prepared a table which shows the thread intervals between the various sizes. It is as follows:

TABLE OF NUMBER INTERVALS.

	Dufour.	Schindler.	Hornberger.	Egli & Sennhauser.	Reiff-Huber.	Heidegger.	Pestalozzi.	Stallmann.	Hohl & Preissig.	Latimer.
0000										
000	4	4	6	4	6	4	4	5	4	4
00	6	6	6	6	5	6	6	5	6	6
0	10	10	10	10	10	10	10	10	10	12
1	10	10	10	10	10	10	10	11	10	8
2	4	4	6	4	5	4	6	6	4	4
3	4	4	4	4	5	4	4	2	4	4
4	4	4	4	4	4	4	4	3	4	8
5	4	4	4	4	4	4	6	5	4	4
6	8	8	8	8	8	8	6	9	8	8
7	8	8	8	8	8	8	8	5	8	8
8	4	4	4	4	4	4	4	6	4	10
9	10	10	12	10	12	10	12	12	10	10
10	12	12	12	12	13	12	12	11	12	10
11	8	8	8	8	6	8	8	8	8	10
12	10	10	6	10	6	10	8	9	10	10
13	6	6	6	6	7	6	6	4	6	10
14	9	9	8	9	12	9	9	9	9	10
15	9	9	10	9	6	8	8	11	9	10
16	8	8	10	8	10	8	10	7	8	10
17	7	7	8	7	10	7	----	8	----	10
18	4	15	4	17	10	----	----	----	----	----
19	3	----	----	10	----	----	----	----	----	----
20	3	----	----	10	----	----	----	----	----	----

You will observe that between the Nos. 0 and 1, there are ten threads difference, which is a sensible interval, but when they came to make a No. 2 it was determined to have but four threads difference. And further down in the table you will find one maker giving but four threads between Nos. 17 and 18, and another fifteen. Again, why should there be an intermediate size between Nos. 9 and 10? Why not expunge the No. 9 size entirely.

I am confident a careful survey of this important matter will bring home to you the necessity for some plain, practical, uniform system which governs all silks wherever made. Let us abandon this conglomeration of ideas, whims and fancies, and settle down to some comprehensive basis. It is said that "every ill has a remedy," and I am happy to bring forward here a most excellent suggestion made by C. Schindler-Escher, of Zurich, Switzerland, and heartily endorsed by that European milling expert, Prof. Kick, in his "Mahlfabrication" work of 1883. Mr. Schindler suggested the adoption of a system the same as is now supposed to be used in our gritz silks, where the size number indicated the actual number of threads per inch, and the advance in fineness was to be by half and multiples of ten. Thus a No. 12 silk would have 120 threads and be the same the world over. The miller would know then precisely what he could expect, and no matter how often he changed his reel cloths or how frequently the brand, as long as he adhered to

the same size he could expect the same bolting results.

Naturally some will oppose any reformation, preferring to adhere to the present blind way of doing things rather than have a rational, uniform system universally recognized. I would not be surprised if these were not the very ones who need looking after in the little details of their business. They are of the kind who will submit an extra quality sample and fill an order from a standard, knowing how difficult it is for a miller to detect the fraud after the silk is made up. In calling for some samples to make some microscopical examinations in 1884, I found one dealer verdant enough to believe such imposition could not be detected.

The durability and wearing qualities of bolting silk depend on a multitude of circumstances. An elasticity is essential which can only be found in a prima grade of raw material. It has been said by Mr. George T. Smith that the centrifugal reel gives not only a saving in the quantity of silk, but is less wearing. With all deference to that gentleman's opinion, I am inclined to take issue with him from the fact that the action of the reel is that of force, which is verified by the collateral fact that, generally, to produce the same bolting results on a centrifugal as on an ordinary reel, you must use one finer number of silk. Our hard, and the India wheats, on account of the sand-like gritty nature of their middlings, are particularly wearing on bolting silks, and require it to be of the best quality. Our soft wheats are especially demanding a bolting silk whose meshes are open and free.

You doubtless have observed from what I have said that the manufacture of bolting silk is a surprisingly simple process, yet complex enough to justify its being called an art. From the present methods of weaving, it is not possible for one manufacturer to keep from another what is being done. All are subject to the inspection of their neighbors and competitors. In respect to the component parts of the threads there is some chance for concealment, but advantages are open to all alike, hence it is the summit of absurdity to say that one has special privileges. Our best manufacturers will not purchase anything but silk, strongly twisted and made from prima cocoons. They will carefully and daily watch their weavers, and never lose a vigilant inspection over every part of the process. They will examine the piece several times upon both sides, and detect and repair broken threads, and never relax any effort to meet the millers' requirements.

It is scarely possible to lay down any "set rules" for guidance, but generally speaking, it is safe to discard a yellowish, dirty edged piece of silk which will indicate an age which might impair its usefulness. Select a silk having a compact, clean, pure white, regular, even selvedge. Examine the meshes with a glass magnifying about 30 diameters, counting in the weft and warp directions, making say 20 such counts in different places, and by striking an average see if the number corresponds with the guaranteed size. Observe if the meshes are free from sizing, are regular and uniform in size. See if there are any broken or fibrous, and how well those that have been broken are repaired. Carefully inspect the twist of the warp, seeing if the threads are tightly brought together. Be careful not to be prejudiced against a silk simply because it has a feeling of stiffness. Most millers would at once condemn such as having a superabundance of sizing, but certain operations of scrubbing silk, and the application of the gelatine at proper stages are apt to give the silk such a feeling. Sizing is a necessity to all silks and is not injurious except when its presence clogs the meshes and prevents free bolting.

These are but a few of the suggestions which can be made available to you. In the selection of the raw material and many subsequent parts of the process of manufacture, you are dependent entirely upon the reputation of the manufacturer. If it were possible, and sufficient time was at his command, the microscope would be a most valuable adjunct to every miller's kit of tools. But there are many difficulties in the way of obtaining practical service from it. I find I have failed to give you a pointer which will be most invaluable to you in selecting bolting silks. This material being a matter of confidence, character and reputation, I would suggest that you first apply your magnifying glass to the dealer. If you find him wearing the appearance of honesty, you may usually rest safe in his hands. If, however, you see he has even one eye a little off color in the matter of honesty, the quicker he sees the middle seam in the back of your coat, the better it will be for your pocket and Christian character.

D. H. Ranck then read his paper on "Corn Meal Milling," which was as follows:

D. H. RANCK.

Mr. Chairman, and Gentlemen of the Convention:

Out of the whole family of cultivated plants adapted as food for man there is but one milling grain that is clearly of American origin—maize, or Indian corn. This much being conceded for it, we need not trace its origin as a wild plant, or inquire into its value as a food product, prior to that time in our history when its cultivation first became the effort of the husbandman and appliances were invented for transforming it into meal. Nor should your patience be taxed at this time to listen to dry statistics bearing upon the production and distribution of this chiefest of cereals. Therefore, I shall make no reference to those subjects that may interest you to read and file away for reference, but which would not be entertainment for you on this occasion.

We speak and write in these days of revolutions in the manufacture of bread products, and we think of the numerous processes particularly as having to do with the improvement of the quality of flour and the economy of its production. It was not so in early times. It was sufficient in those days that enough corn was grown, and improvement in the method of its manufacture was no more thought of than the cultivation of one quality for bread and another for stock feed. What was good for beast was good enough for man, and man was satisfied in corn as it was grown and as it was rudely prepared for his sustenance. Hence, we find, down to the days of our own remembrance, little in the line of corn mill machinery not known and used by the mound builders, and their successors, the Pueblo and nomadic Indians of our own day. Starting from the crude implements of these people, the inventive genius of the American millers and millwrights of to-day has evolved lines of milling machines, and systems of milling that are no less marvelous than the evolution from the Evans methods to those of Gray, of Stevens, of Smith, of Case, or any of the too-numerous-to-mention inventors, in the realm of the flour milling industry. In the preparation of a paper of this character, it has not been found expedient to present a recital of the claims and description of the numerous appliances that have been brought forward in the past twenty years or so for the better milling of corn, or to elaborate upon the manifold methods employed in the manufacture of this staple. It will suffice, I think, and fully meet your expectations, if I can set before you somewhat of the practical results of the stone and roller processes of corn meal milling as inquired into by me in the performance of this task. I might here premise that roller corn meal milling is subsequent to any actual experience of my own, and hence I have relied upon those whom I know to be doing well with it, and who have an extended reputation as corn millers, for much of the data that follows:

It should be understood at the start that there is not, nor can there be, a method of corn milling that would be uniformly successful in all sections. Millers are apt to overlook this fact, in not considering that variety in corn, in its form and consistency, is greater than almost any grain that is grown. The nutritive qualities in different varieties are so unequal that the proportions of each are sometimes almost doubled in one or the other. Thus, the muscle making material in northern corn is given at but 14.6 per cent, while in southern corn it is 37.5 per cent; the fat formers at 78.9 per cent in northern and 46.5 per cent in southern, and so on through the entire analysis. From this fact, it must be admitted that the system of milling in a corn mill at Atlanta must be radically different than in the mill in Chicago to get the best value out of the grain. I am reminded that this difference in the money value of corn milling is not, and it certainly should be, the single purpose of millers, whatever advantages they may possess in complete mills and choice locations, if it must be pursued to the loss of improvement in the quality of the product. What should be commended at the present time are systems of milling that will put upon the market a corn meal, or a corn flour, that will engage the tastes of the people, even at the sacrifice of the wheaten loaf. There is too much good wheat flour and not enough of other good meals made. I mean by that there is not manifest enough interest in the manufacture of flours from corn, oats, rye, etc., among our millers in localities where a special method of milling would most likely prove remunerative. The trade in these lines, and more particularly with oats, rye and barley, is centered into a few mills which do a large business, at presumably fine profits. So far as corn is taken into this account, we find a very gratifying prospect in the improved methods of its milling and the increased number of fine mills that are going up in all sections of the country where corn is grown. We find the greatest activity in this direction in the southern states. The "rocks" are going and the rolls are taking their place, and so far as I am able to learn, there is no deterioration in the quality of the product, while there is a marked increase in the quantity produced, and a correspondingly larger market opening up for it.

The revolution in wheat milling, by which is meant the introduction of purifiers, rolls and other modern machinery, made possible the gradual reduction process (if I may be permitted to so term it,) of corn meal milling. Until lately no one heard any complaints as to the inefficiency or incompleteness of the machinery of corn milling. During the reign of the Esopus and French buhr stones there was very little discussion as to methods of grinding meal. Once in a long while the milling journals would contain a request from some puzzled miller for information as to the number of cracks to the inch he should put in the stone, or what number of cloth was best on the sieve under specified circumstances. And here ended all yearning after knowledge, and stopped was the miller's ambition to excel.

While roller corn meal milling in this country has not yet got beyond the experimental state, it is not a new experiment by any means. We go at things in this country with a view to their adoption as a fixed and substantial investment, unmindful of the success similar operations may have met with in other countries. Corn has been milled in this manner in Europe for many years. I am not quite certain, yet I think it was contemporary with the general adoption of the same process on wheat, or shortly thereafter. The work was done in the regular flour mills, which, as we know, were so constructed and arranged that it became an easy matter to adapt any sort of milling to them. They are not automatic mills such as we build here, and in consequence any change in the nature and methods of milling was comparatively an easy matter for them. Let me briefly compare this process with the work in stone mills as generally understood:

The fairest average analysis of Indian corn that I know of gives 66 per cent of starch, 11 per cent of gluten, 4 per cent of cellulose, or fiber, 6 per cent of fatty substance, 1 per cent of salt, and 12 per cent of water. The germ contains nearly all of the 6 per cent of fatty substance mentioned. Counting this as going into the feed, there would remain about 78 per cent, or nearly 44 lbs of palatable food in a bushel of corn of 56 lbs. Hence, in theory, the most perfect mills could not make more than 44 lbs of *pure* meal out of a bushel of corn. In reality, they make much less. In one of the most complete roller mills I am acquainted with, a larger proportion of fine starchy substance is run to the feed than is ever done in the old-style stone mills. For this reason the yield is and must be larger in stone mills than in a modern roller mill, because: First, in the roller mill the germ, or fatty substance, in the process of gradual reduction and the employment of scalpers and air currents, is separated and taken to the feed, while in a low-grinding stone mill it is reduced and remains in the meal. Second, a modern roller mill employs aspirators and purifiers, which eliminating the fibrous, or bran particles, at the same time conveys a portion of the starch to the feed, while the old-style mill pulverizes a large percentage of the bran, and in the absence of suctions or blasts runs to the feed only the very coarsest bran. Third, in a modern roller mill one of the essentials is the dusting reel, employed to remove from the meal all the flour, or pulverized starch. In the old-fashioned stone mill this fine starchy substance is retained to a large extent in the meal. All of us remember that in old wheat millers talked about a yield of 4 bus and a peck, and 4 bus and 10 lbs, and we know that under the gradual reduction system it is much higher for the reason that there is less of the offal in the flour. Much of the same kind of talk is heard among corn millers to-day. However, this question of comparative yield between the roller and stone processes of corn meal milling might be pertinently answered in this wise: It is impossible to make out of a given amount of corn as much purified meal as can be made of unpurified or impure meal. Purified, or pearl meal, as it is commonly known, can be made on stones as well as on rolls, by using the same separating and purifying machinery, and reducing gradually, and in such cases for comparison the yield will favor the rolls. Stones, even when handled by experts, and being in perfect running and standing balance, true in face, and grinding high or reducing gradually, will scour or pulverize the stock more than rolls, owing to their natural grit and large contact surface, in consequence of which much pulverized stock will be taken off. One of the principal points in granulated corn meal milling is to avoid as much as possible this pulverization, and in the accomplishment of this end, it may readily be seen the roll is the superior implement in the reduction process. Again, experience has demonstrated that purified meal will keep sweet and fresh much longer than the old system meal, probably for the reason that the germ, and with it, or rather in it,

the oily portion of the kernel, is removed, many corn millers using dry kilns only for meal intended for export, or to be preserved for a long period. It is a question whether they should not be used for all purposes. In the Southern states a finely pulverized meal is made, the main point with most millers there being a large yield. It is reported that some mills make as high as 48 to 52 pounds of meal out of 56 pounds of corn, and one well-known mill builder says that in a Southern mill on his system they are making 55½ pounds of meal out of 56 pounds of corn. To do this it was necessary, he says, to grind all the offal, except the cleanings, which amounted to only about one-quarter of a pound, into the meal. The miller claimed to know his own business best, and the mill builder's protests in this instance were of no avail. For such milling as that, I suppose the old buhr system is preferable, for the reason that pulverization, or close grinding, is accomplished more easily and perfectly by it, though two or three reductions may be made on rolls, and the product then be scalped, carrying off the coarsest bran, and grinding down close what remains into fine meal on stones.

Concerning the quality of the product made by rolls and stones, it being understood that both are making purified meal, using the same separating and purifying machinery, and both working on the gradual reduction system, it will be found that the roller-ground meal will be rounder and more evenly granulated, for the reason that the stock is gradually reduced and sized and graded so that the product of marketable material may be each, in its class, of approximately uniform granulation, and the rolls themselves being in a sense separating machines, it will be purer. Herein lies the great superiority of rolls. They are naturally adapted to the work. A pair of stones will not produce an even, granular meal—they will invariably flour a large portion of the stock and bran. In addition, they are a constant and running expense in a mill, requiring dressing, balancing and facing.

The old-fashioned, stone ground, undusted and unpurified meal will bear no comparison with the granulated meal in value as a food product or as a marketable commodity. I believe it will be but a few years before this quality of meal will have disappeared entirely, or be manufactured only in mills "up 'long Tom Robson's creek," or other out-of-the way places where civilization is yet in a somewhat chaotic state and competition is still an unknown quantity in the miller's experience.

As stated before, the main object in view in corn milling as it is and should be in any kind of milling, is to excel in quality of the manufactured article. In the milling of corn yield is of less importance than with any other class of milling that I know of, for the reason that corn offal, or corn feed, always brings a good price, is always in demand, makes a rich feed, and in many instances can be worked in with the chop feed. The difference between the price of the feed and the price of the raw material does not vary much. I have known feed to bring more per ton than the same quantity of corn, but that is not usual, but, as I say, there is not much difference in the price paid for one and the value received for the other. So we see, the yield of fine grades of meal in corn milling, in a commercial sense, is not the matter of consequence that, for instance, a rich yield of the higher grades of flour is in wheat milling.

The limits of a paper of this character will not permit of the consideration of the numberless details of corn milling. There is hardly a question that might be given, that does not bear upon some feature in modern corn milling that is not a settled fact. The processes are yet in a developing state. There is little certainty about any of them so far as the choice lies in the adoption of one of many different methods. If there is greater demand for feed than there is for purified meal, the miller would doubtless adopt the system that yields him most of that, and vice versa. Unlike the object sought by the flour miller, the corn miller may be located so, that the quantity turned out of his mill may mean more money for him than the quality of the material, and as mills are operated to make money, the feed miller is not bothered by problems that bewilder, while they interest, the miller who is striving for pre-eminence in the manufacture of purified products.

In what follows I shall endeavor to give in brief outline what I think will pass for a fair sample of a modern corn meal system. It will be found much simpler than any system of wheat milling. By a modern system you will understand a full roller gradual reduction mill making from four to six reductions: The corn, previous to being subjected to the first reduction rolls must necessarily be well cleaned. It may be scoured, but that is not really essential. Some manufacturers affirm that the best work in the preparatory stages of milling can be done without the use of a hominy mill, while others are emphatic in declaring the hominy mill an adjunct of a mill making various grades of stock as a separating machine. I am disposed to side with the advocate of the hominy mill, if the aim of the miller is the making of purified meal. If the yield is no object to him, then there is no need of the preparatory action such as may be taken by the use of the hominy mill. It stands in the same relation to corn milling that a first break does to wheat milling, and all millers will recognize the importance of that step in the work as it bears upon the subsequent treatment of the stock. The hominy mill is particulrly useful in the milling of hard corn, or that which has been kiln-dried. Some good millers have suggested that hominy should be made on rolls. What is called pearl meal, or granulated and purified meal, and grits, can be, and is often, manufactured without the use of hominy mills, by making from four to six reductions on corrugated rolls. To accomplish the same thing without the use of hominy mills, it is advisable to scalp the stock after each reduction on a coarse wire cloth, and this coarse stock should be aspirated before running it to the second reduction roll. In this way a large portion of bran and other dirt is taken out of the stock at the very commencement of the operation, and the danger of grinding and intermingling impurities with the meal is that much sooner avoided. By aspirators are meant suction purifiers, without any cloth, the stock merely dropping through an air current sufficiently strong to carry off bran and light dirt. A cloth on the aspirator is not necessary for the reason that this stock has already passed over a coarse cloth and the specific gravity of both the valuable and objectionable matter is great. Next in importance to the scalpers and aspirators are the dusting reels, which are covered with one or the other of the finest numbers of silk grits gauze, or corresponding numbers of silk bolting cloth—say from No. 5 to No. 7. To these reels all the meal is sent, and this cloth will take out all floury, starchy or dusty stock which is not wanted in granulated meal. Finally, the meal will be graded into different sizes on a sieve, and each size will be run to a separate sieve purifier. Only the coarsest numbers of corn grits may be handled with success on an aspirator. Very coarse grits can be fed to sizing rolls, to be reduced to finer meal and grits.

There is more variety in corn products than anything subject to milling processes. It would tire you to listen to a full description of such of these as are commonly known, and the "secret art" is as manifold besides. Down near where I come from we have corn millers who every month or so are taking out patents on some product derived from corn. The other day a miller in Ohio sent us a sample of corn flour, declared to be the whole substance, minus the fibrous portion, of the grain, and which is guaranteed and testified to be a "rising" flour—that is, it will make a loaf of bread of equal lightness to a straight grade of wheat flour, and that without any admixture with wheat flour. It is made of peculiar corn. This flour "slicked" as smooth and lustrous as any flour, and would "dough up" nicely. There is a trick in it somewhere to be sure, which a simple chemical analysis would bring out, but it occurs to me here is an object set out that is worthy the attention of some enterprising corn miller. There is a demand for a corn flour that will produce a loaf of a light spongy nature, and that will retain the natural savory taste of the corn. There is an enormous business awaiting the miller who succeeds in producing such a flour. It is not in the corn itself to furnish such a substance, but the laboratory may discover some means to obliterate every essence from the admixture of some other quality of flour, so that the result may be that sufficient albuminoids can be taken from this source and incorporated with corn flour and produce the desired result. I suspect there is a Hoosier now at work with that object in view, and he is likely to get there.

In conclusion, there is one feature in the growing importance of the corn milling industry that should not be lost sight of. In addition to the increasing demand from our own people for a good corn meal, there are vast possibilities for this sort of milling in the future demand for export. Austro-Hungary, the western provinces of the Turkish empire, southern Russia, Italy, and to a limited extent a few other countries of Europe, consume vast quantities of corn meal. They are corn growing countries. To such we can not hope to build up any trade. But there are the vaster empires of western Europe, where a good corn meal is yet an unknown luxury. The proper introduction of our superior granulated corn meal into these, I am satisfied, would meet with as great appreciation for its excellence as the acknowledged superiority of American flours, and with less likelihood of competition from successful milling systems there. While we export vast quantities of manufactured corn to Europe, most of it is in the shape of grits, intended for the breweries of Germany, Austria and Bohemia. Our energies should also be directed to the introduction and sale of the better product of our corn mills at the same time.

At the World's exposition in New Orleans last year, one of the grand commonwealths of this western section of our grander Union, reared an imposing monument from the products of her soil, and surmounted it with a figure of "King Corn." It was the most striking feature of the marvelous collection of the world's resources there exhibited. It symbolized the majesty and extent of our agricultural empire, and impressed the beholder with a sense that if ever king ruled by divine right, he who wore as his crown of conquest the bounteous gifts of nature's God, was indeed entitled to the homage of a grateful people.

The chair then named the following gentlemen on the committee on nominations: Messrs. Greenleaf, Plant, Kidder and Hinds.

The meeting then adjourned until 10 o'clock a. m., Thursday, May 13.

SECOND DAY'S PROCEEDINGS.

The meeting was called to order at 10 o'clock a. m. by Mr. Seybt.

Mr. Ellis read the report of the subexecutive, in connection with the auxiliary committee, on the Downton patents which is as follows:

Whereas, It appears from all authentic information obtained by your committee in connection with your executive committee, that very few of the members of this association are infringing the patent of R. L. Downton and assigns; and

Whereas, In a majority of such cases the mill furnishers who supplied them with such machinery, acknowledge that they can be held responsible and have proposed to defend any suits that may be brought against their customers, as we believe in both a moral and legal sense they are so responsible, therefore be it

Resolved, That we recommend this convention to take no action in the premises, and refer the whole subject to the sub-exective committee with power to act.

Mr. Sparks, of Alton, said:

Gentlemen: This is the report and recommendation of your committee to the convention. Now it often happens that a convention hastily adopts papers submitted to them by their committees. This is simply a recommendation of the committee to the convention, and the convention can vote it down or adopt it at its pleasure. It is well that you should consider the matter before taking any hasty action.

Mr. Seybt—Your auxiliary, in connection with your other committee has read and studied out the entire case, has consulted with mill machinery men, with Downton and his lawyer, and after all this study, care and consultation, your committee has come to the conclusion that all further action should be left with the executive committee. If any one wishes for more information this is the time and place to speak out. I will say this, however, that the subexecutive committee, in the past, has fought rather than compromise a doubtful claim.

Mr. Bain, in explanation to a member who asked what the Downton claims were, said: As a member of the auxiliary committee and from all that we can find out about his claims, it would take a lifetime to find out what he does not claim. The sub-executive committee submitted the entire case to Mr. Thurber, of Rhode Island, who is well posted on the law, and it took your secretary several hours to read what he thought of it. I can assure your members that the matter was carefully considered in all its phases. We were with Mr. Downton and his lawyer and mill-furnishers who supply rolls and their lawyers, and the result of the whole conference was what these resolutions ask for.

Mr. Sparks: I think I have heard enough of law and evidence to give me a pretty accurate idea of what this patent is and what his claims amount to. I doubt, however, if anyone short of a Supreme Being could tell all. For instance, you may have a full line of Stevens rolls, which is called the round corrugation, and you decide after a while to remove two or three sets on the end, and you put in the Allis rolls, with sharp corrugations, and down he swoops on you. Or, you may have a full line of Allis rolls, and the first breaks get dull after a while, and you don't sharpen them, but allow them to grow duller, and you do sharpen two or three sets on the end—then he is after you again. You can't use the Stevens rolls in the first breaks and the Allis rolls on the last breaks but he cries "infringement." When a miller uses a full line of any rolls, and sharpens the tail rolls, Mr. Downton says he must also sharpen at the same time those on the first breaks. In fact, you must consult him before you can do anything. In fact, as I understand it, there is hardly a time when you do not infringe. In fact, you would infringe on his own rolls, except you kept them always in the same condition in which he sold them to you. If you sharpened his first rolls, for instance, you would infringe on himself, so that a miller can have no idea of his own—his ideas are entirely covered by this patent, so that you see the whole thing is absurd on the face of it.

Mr. Seybt—I asked Mr. Downton's lawyer to try and tell us where it begins and ends. He could give us not any definition, so it occurred to us to let the settlement slide by, as we can't get at the bottom of it, any more than himself or his lawyer. Are you ready for the question?

The motion was then put and the resolutions were unanimously adopted.

Mr. Bain offered the following resolution which was adopted unanimously:

Mr. President: Inasmuch as Mr. Christian, our president, is unable to be with us to-day, owing to the state of his health, I wish to offer the following resolutions:

Whereas, John A. Christian of Minneapolis, has for the past nine years taken a prominent part in all the deliberations of this association and has been one of its active and most valuable members, whose superior judgment and great business ability have largely contributed to the success of our efforts in defending the millers of the United States from patent and other claims of doubtful justice, and,

Whereas, We learn with regret that the state of Mr. Christian's health is such that he is no longer able to act with us in an official capacity, be it

Resolved, That this association, in view of the high respect in which all its members hold Mr. Christian, both as a business man and a gentleman, express in this public manner its appreciation of his services in a private and official capacity.

Mr. Seybt—I would like to add one word. I have been with Mr. Christian most of the time that he attended. It is to his energy and cool head and good sound judgment that we are indebted for a great deal of the success of this association. We miss him in our councils now, and while deliberating lately, I felt that a personal and true friend was absent.

Mr. Seamans—As a member of the sub-executive committee since 1877 I have been a colleague with Mr. Christian, and while I can't do the subject justice, I feel that I ought to say something on this occasion to place on record my appreciation of him as a man and a gentleman, and of his great services when we were in trouble in the Cochrane suit. At that time he advanced us $8,000 to help us get the testimony and defend the suit. I should like to have the millers at large know of his great services in their cause, that full justice may be meted to his great merits as a tribute to his genuine worth.

Mr. Koll of Dakota—I am not personally acquainted with Mr. Christian, but every member who has taken any interest must know of his great services to this association during the past ten years. I am, therefore, anxious to express my gratitude and indebtedness to him. I consider that Mr. Christian has done more, perhaps, than any other one man for the benefit of the members of the Millers' National Association, and I am sure every miller will pay a tribute to his worth.

The resolutions were unanimously adopted.

Mr. Ellis, of Indiana, then offered the following resolution:

Resolved, That it is the opinion of the Millers' National Association that some uniform standard system of numbering bolting silks be adopted, and that the association requests A. B. Kellogg to communicate with the various manufacturers and endeavor to prevail upon them to adopt such, and report to the association at its next meeting.

The motion was seconded and carried.

A motion by Mr. Smith, of St. Louis, that all ex-presidents be ex-officio members of the sub-executive committee, was lost after some debate.

Mr. Smith, of Illinois, offered the following resolution, which was carried:

Resolved, That new applicants for membership to the association, either representing new or old mills—all applications to be subject to the approval of the sub-executive committee of the National association—must pay five dollars per unit of 35 barrels capacity.

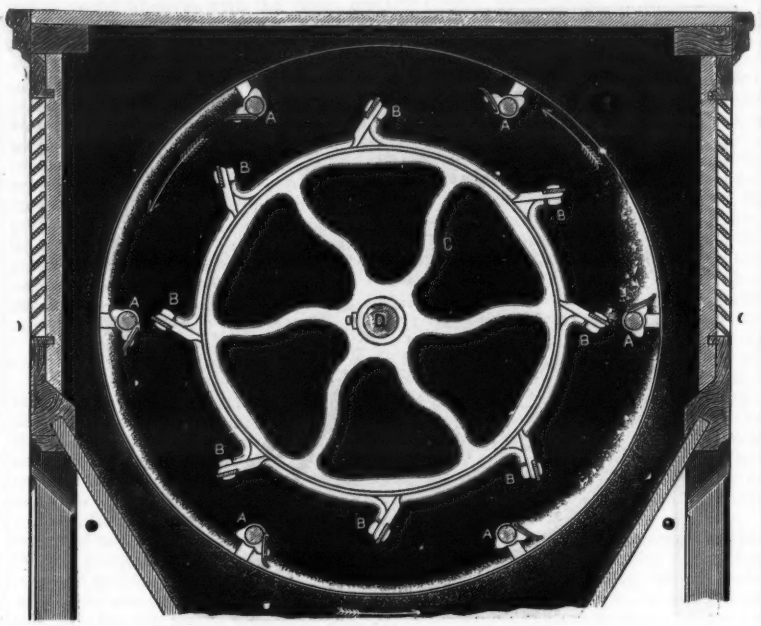
A letter was read from Hon. W. D. Washburn, of Minneapolis, inviting the members of the convention to visit the Industrial exposition to be held there from Aug. 23 to Oct. 2 of the present year.

The chairman then made the announcement that several of the railroads centering at Chicago had offered reduced rates to members of the convention returning to their homes, the Chicago & Alton being especially mentioned.

A paper was then read by Geo. T. Smith on "The Centrifugal System of Bolting," as follows:

GEO. T. SMITH.

Gentlemen: Your committee of arrangements has honored me by selecting me to read one of the series of papers which form part of the programme for the present meeting, and has assigned to me the subject of the centrifugal system of bolting. For this compliment I desire to return thanks, and at the same time assure you that it is not my intention to tire you with a paper of undue length, or by reference to unimportant details. My endeavor will be to point out as briefly as possible the chief features in which the centrifugal is superior to other reels in its operation on the stock to be bolted, in the results produced, room occupied, power consumed, cost of machines for a given capacity, expense of placing and connecting them in the mill building, saving of silk surface and wear of cloth, and economy of operation as a complete system, leaving a fuller inquiry into this system of bolting, and an examination of its practical operation to yourselves, when you visit Jackson on Friday, as I believe it is your unanimous intention to do. I have had the drawing here given, which is a vertical cross section of our reel, showing an end view of the working parts, prepared, to show the action of the machine, and it is a substantially correct representation of the interior of that reel, as you will find it in operation. And here let me explain that the centrifugal, as we are now building it, is a very different affair from the machine of that name with which I first became acquainted in England, several years ago. That centrifugal was very severe on both stock and silk, drove the material through the cloth by the direct action of the beaters, did not bolt clear, ran heavily, and lacked durability. The centrifugal of to-day is exactly the reverse of its predecessor in every one of these features, as I shall try to show later on. Referring to the drawing: AA are the hinged elevators attached to the stay rods of the reel frame for the purpose of carrying up the material as the cloth cylinder revolves, and delivering it to the spreaders or distributors BB on the upward moving side of the reel. As these elevators complete the discharge of their load they are arranged to drop automatically away from the silk, so that the material reaches the cloth behind them, and is not obstructed in its travel around the silk cylinder. C is the spider to which the distributors are bolted, and D the distributor or driving shaft. The silk reel makes one revolution to 12 of the distributor shaft, or about 18 per minute. In operation the material being bolted is carried up by the elevators and gradually discharged on to the distributors, which, by their centrifugal action, spread it evenly over the entire silk surface. On the lower quarter of the upward moving side of the reel, the bolting is effected somewhat as it would be in a round reel without the distributing cylinder, and the amount of work done on the section of cloth referred to would represent the entire bolting capacity of a round reel without distributors or elevators. From



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the center of the upper side of our reel, however, around over the top and nearly or quite to the center at the bottom (this being the portion of the silk covering most directly exposed to the action of the distributors) the amount of work done is larger in proportion to cloth surface, in the ratio of at least two to one, than on the section first mentioned. The distributors deliver the material to the silk at a very acute angle, the apex of which is in the direction in which the cloth is moving, so that the bolting is effected almost entirely through the sliding movement of the stock over the cloth, and not by the material being forced through the silk, as is the case with the common reel. An examination of the reel at work will show that the material travels at a much higher speed than the silk cylinder, and confirm the statement of the manner in which the bolting is accomplished.

Having thus described in a very general way the operation of the reel, we claim for it that it handles the stock much more gently and with less wear and flouring of the material than the common reel; that the capacity is many times greater on the same silk surface; that it requires very much less power to bolt a given amount of material; that it bolts clearer and gives a sharper flour, dryer and sharper middlings and cleaner tailings, and that it is much easier on the silk. It handles the stock more gently than a common reel because it appears from actual experiment that in a hexagon reel 16 ft in length and running 30 per minute, the same material is carried nearly to the top of the reel and allowed to fall to the bottom—a distance of about 22 inches—400 times in its passage through the reel from head to tail, and as it requires three or four common reels to equal the capacity of a centrifugal with like silk surface, it follows that the stock would be carried up and dropped as described, at least 1,200 times. The noise made by the stock in striking the silk as it falls from one side of a common reel to the other, can easily be heard a number of feet, if the reel doors are removed, and this treatment is certainly the reverse of gentle, while in the centrifugal the stock slides down along the silk and no sound indicating the falling of the material in a body, or its striking on the cloth, can be detected, even by placing the ear inside the reel frame. The stock is finished much more rapidly and is consequently handled over very many less times. A very large sized centrifugal—one having from 4 to 6 bbls capacity per hour—would have not more than 10 ft length of conveyors. Common reels with like capacity would have at least 40 ft of conveyors, and you all know the result of conveying flour ready for the packer, or middlings suitable to go to rolls or purifiers, a long distance.

The capacity of the centrifugal is greater than the common reel because it bolts all the time on every square inch of cloth, while the common reel does not utilize more than one-fourth of the silk. It requires less power because in one elevation of the stock in the cylinder, four times as much bolting is effected as in the common reel, and the material therefore requires to be elevated only one-fourth as many times. In the common reel the weight is all on one side and driving it is something like turning an overshot wheel against the water, while in the centrifugal the friction and weight of the material on the downward moving side of the reel counterbalances, to some extent, the load being lifted on the opposite side. There is also the saving in distance the material has to be conveyed to get it to the desired spot, and the elevation from one reel to another, where four or more reels are used instead of one. In a mill using common reels, the conveyors, elevators and reels would at all times be handling twice as much stock as in a centrifugal mill, and using additional power proportionately.

The centrifugal bolts clearer than the common reel, because in the last named the stock, falling in a body a distance of nearly two feet, forces whatever material may happen to strike first through the silk, and because the stock is handled over such a great number of times that the impurities are worn into dust as fine as the flour.

The flour is sharper for the reason that the stock travels over only a comparatively small silk surface, and is treated so gently in the centrifugal, while in the common reel the length of silk traversed, the number of times it is elevated and let fall, and the distance it afterward travels in conveyors and elevators produces a fine dust which softens and darkens the flour. The explanation given for the sharper flour produced by the centrifugal will apply in support of our claim that it gives sharper and dryer middlings and cleaner tailings.

It is easier on the silk for the reason that the wear is distributed evenly over the whole cloth surface, and that the material does not come in contact with the cloth severely, while in the common reel the whole load falls every moment a distance of nearly two feet, striking on the silk in the same place each time, and wearing it out rapidly at the point of contact, while the remainder of the cloth is still good. If these claims are substantiated by your own investigations, I think you will have no difficulty in be-

lieving with me that such a machine is adapted for use as a complete bolting system.

In my description of the reel and its manner of operations, I have, I think, said all that is necessary in regard to the following named points, to which I promised to confine myself in the beginning: The superiority of the centrifugal to other reels in its operation on the stock to be bolted, in the results produced, amount of power consumed, saving in wear of silk and in silk surface required for a given capacity. It now remains to compare it with the common reel as regards room occupied, cost of machines, expense of placing and connecting them in the mill building, and economy as a complete system.

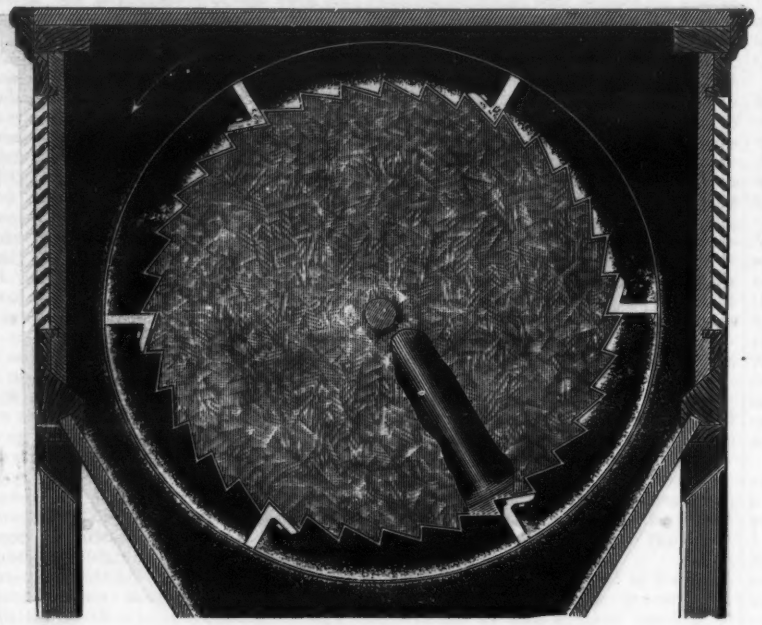
From such mill plans as we have made for parties whom we supplied with full outfits of centrifugals and scalpers, we find that the saving in room required for bolting machinery when a complete centrifugal system is used, is about one-half; the saving in first cost of machines, including the difference in bolting silk, pulleys, shafting, gears, etc., etc., required to drive them is fully one-third; and the expense of placing and connecting centrifugals in the mill building, owing to the fact that they go to the purchaser complete and ready for the belt, is only a very small fraction of the cost of erecting common bolting chests. In stating why the centrifugal bolting system is the most economical, I shall be obliged to recapitulate to some extent what I have said about that machine separately, and under this head I may be permitted to mention saving of room, saving of power, saving in amount and wear of silk, the improvement in the flour, and the closer finish.

The saving in the wear or flouring of stock by reason of its gentler treatment in centrifugals, the fewer number of times it is handled over, and the less distance it travels in reels, conveyors and elevators, is a feature the importance of which can hardly be overstated, as the flour dust resulting from this handling is unavoidably mixed with the flour, can not possibly be separated from it, and unquestionably damages it to a considerable extent. In gradual reduction milling a great number of separations is an indispensable part of the system, each one involving the handling of a greater or less portion of the stock, according to the separation being made, and any means by which these separations can be effected with the least reduction of the stock is certainly worth your attention.

You are all aware of the fact that the common hexagon reel must be given a certain load to insure its doing good work. If too lightly loaded its flour will be dark and specky, and if overloaded its tailings will be too rich. If the proper load can not be otherwise provided, it must be by a return, through long conveyors and elevators, the bad effect of which has already been mentioned. The centrifugal, on the other hand, bolts clear its whole length, and without much reference to how it is loaded. I shall show you centrifugals at Jackson, from which we are drawing flour the entire length of the silk, the last slide being clearer and better dressed than the first on a common reel bolting same stock, and the tailings absolutely dry, free from flour and ready to go to rolls or purifiers. From this action of the centrifugal it follows that each separate grade of stock can be handled and finished by itself, and there is no residue from the different classes of material accumulating toward the finish to be bunched in special reels, thereby increasing the proportion of inferior flour.

The cleanliness of the centrifugal mill is worthy of mention, and this I think is accounted for by the fact that the best class of material is used in the manufacture of the machines; that the lumber is thoroughly kiln dried, and that being built, finished and tested in the shop, where there is every facility for giving the most careful attention to the details of their construction, they are dust tight, and free from leakage. The expense of building the required number of such mammoth structures as the old fashioned chests, in the mill, giving them the finish, and employing the class of material and workmanship in their construction used in the centrifugal, would make them a luxury no miller could afford. Flour bolted on centrifugals will take more water, is sharper, and more granular, and even when made exclusively from soft Michigan wheat, has been pronounced a mixture of spring and winter by the best Boston experts.

I have said a good deal about the damage resulting from wear and flouring of stock through repeated handling in the dressing reels, and it is of course equally important to avoid loss from this cause in the scalper. The drawing here given is a full sized vertical cross section of a scalper which we recommend for use in connection with the centrifugal. The advantages of the machine are: Very gentle handling of the stock; large capacity, due to the serrated cylinder carrying over a considerable portion of the material and discharging it against the silk on the downward moving side of the reel; and comparatively little wear of the cloth, the stock not being allowed to fall on the silk, as in the common reel, and the wear being evenly distributed. It is



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known as the Holt Inter-Elevator Bolt.

But I am trespassing on your good nature. I have already detained you much longer than I expected to do when I began the preparation of this paper, and in conclusion only beg to explain that our company is only engaged in milling for the purpose of educating itself in the centrifugal bolting system, demonstrating its superiority, giving the managers the opportunity to make such improvements in our machines as may be suggested by seeing them daily in practical operation, and conducting constant experiments, which we try to have result to the benefit of our customers. I shall hope to meet you one and all at Jackson on Friday, where you will have every opportunity to examine our works and the Eldred mill, in which I am interested, and where, I trust, we may be able to entertain you much more to your pleasure and profit than I have done here.

Alex. H. Smith, of St. Louis, then read a paper on "Mill Brands," as follows:

Among other matters discussed but not concluded at a previous convention, that of a national law requiring each package of flour to bear the maker's name and location, seems worthy of further consideration. Such a law should not be necessary to millers. They should be proud to display their names and addresses conspicuously on each package, as the most efficient possible advertising. But from various causes, partly beyond the miller's control, probably more than half of the flour made in the whole country leaves the mills unbranded, or under special or fictitious brands, not identifying the maker. Doubtless millers generally would prefer to sell their product under their own brands, but with a capacity to manufacture greatly exceeding domestic demand, the competition has been so great that the buyers have been able to dictate whether and how flour shall be branded.

Sale of unbranded or special private brands cannot make either reputation or permanent customers for the miller. The buyer using his own brands instead of those of the mill, can and does shade the quality to meet competition, unless the miller will lower the prices. After furnishing the first few lots, upon which the buyer makes a good introduction of a new brand, he is offered slightly cheaper flour, perhaps from a different section, when, if the first seller who started the brand cannot come down, he loses the trade, and the process is continued, until finally perhaps three or more mills, widely separated, are competing to furnish the same brand of flour, and the trade is worth nothing to any of them; contributing thereby to a general demoralization of prices; and, worse yet, perhaps when the special brand is first put on the market, it may be truly represented as the standard flour of some well known mill, the reputation of which helps to give the brand a start; then after a while the buyer meets closer competition from flour a shade cheaper, which looks well, but which may decidedly lack the working qualities of the standard, when he requires the originator of the brand to reduce his price, or lose the orders. It may be impossible for him to do this and maintain his standard, when the buyer takes the cheaper flour from somewhere else and continues to float it on the reputation of or given to it by the original maker. It fails to suit the trade as well, and the word passes around to other buyers that "So and So's" flour has let down, thus inflicting futher damage to the first miller identified with the brand.

By fictitious branding practiced by the dealers who *require* their purchases unbranded, and by millers who feel compelled to brand as ordered by buyers, both millers and consumers are defrauded. All farming communities producing good wheat are interested in correcting this abuse. If Minneapolis flour can be made by simply using that deservedly favorite name regardless of the special wheat which gives that flour its *distinctive* merit, or if St. Louis flour can be made by a stencil and paint brush, or a paper label, which practice certainly helps to prevent the wheat required for a genuine Minneapolis or St. Louis flour from bringing as high a price as it would, it certainly casts a shadow on the flours from these milling centres, the reputation of which, perhaps, it has taken many years to establish. Even flour that in *looks*, *face*, and perhaps *dough* equal the product of the mills of these cities and vicinities, will not give satisfaction to dealers and bakers who have used the legitimate out-turn of these mills, and unknowingly do incalculable damage to the "honest millers" of these cities.

Let each great milling section of the country stand on its own merits, and develop increased excellence in manufacture and encourage the farmer to raise the crop best adapted to each, and there will be no occasion to borrow, without leave, the name of any other. The manufacturer of any food product should not be ashamed to stamp his name and address thereon, and the final buyer, the consumer, has the right to know the name and the location of the manufacturer of his daily food, and to hold him responsible for its purity and quality. A law requiring the name and address of the manufacturer of food products to be stamped or marked on each package, is needed for the common protection of manufacturer and consumer, and where any deteriorating mixtures or substitutes are used, such as glucose in syrups or sugar, lard, tallow, or cotton seed oil in butter or other food products, if they cannot be prohibited or taxed out of market, the constituents and proportions of same should be plainly and truthfully set forth on each package, under severe penalty. The stomach of the nation is closes to its conscience, and should not stand any deterioration of its daily bread and butter. We should invite co-operation of the dairy interest for the passage of such a law. That interest is our customer for mill feed, and this important element in the cost of our flour would bring a good deal more money, if the vile compounds sold for substitutes for genuine butter were prohibited or branded.

Concluding this too hasty consideration of this important subject, I offer the following resolutions:

First, That the secretary of the association shall have a bill prepared to be introduced in congress as early as possible, embracing the matter under discussion, and that he send a form of petition favoring the passage of such bill to some miller in every city or town represented in the association, whom he will request request to procure as many signatures to the same as possible, and

Secondly, That a memorial, setting forth the necessity and justice of such measure be prepared, printed and mailed to each senator and member of the house at Washington, and

Thirdly, That a committee of five be appointed to go to Washington after the matter shall have been referred to its appropriate committee, to urge its passage.

Homer Baldwin, of Youngstown, O., then read a paper on "Flour Purification," as follows:

In compliance with the request that I favor the association with my views on the purification of flour, I will endeavor to explain my theory, with my reasons for the same. I hold the following to be well founded:

First—That the commercial value o flour is fixed by the degree of purity i has attained, increasing in value as i approaches absolute purity, and decreasing in proportion to the quantity of impure matter it contains; hence the importance of flour purification.

Second—That so-called patent flour is simply pure flour.

Third—That any flour of equal purity is of equal value, whether it be made from purified middlings, or in the re-

duction of the wheat in making such middlings. Holding to the position as above stated, I believe as follows:

(1) That as the separation of the pure from the impure portion of the wheat is the grand result desired, we should eliminate all the impurities we possibly can, at every stage in the process, commencing first with the wheat, removing from it all extraneous matter intermixed therewith, next cleaning it in such manner as to remove the exterior of the berry, the fuzz and adhering dust impurities, before commencing its reduction.

(2) That the interior of the wheat berry contains impurities intermixed with the pure flour portions, hence no amount of cleaning of the exterior of the berry will remove the interior impurities. They will have to be removed after reduction has begun.

(3) That the next step toward purification is the removal of the impurities lodged in the crease between the lobes of the berry, which no cleaning machinery, as the term is ordinarily used, can reach.

(4) That in order to make pure flour, we aim to make as large a portion of middlings as possible, that we may free the same from all impure particles before their reduction, thus making that portion of the flour practically pure.

(5) That in any system of reduction, for the purpose of making middlings, a certain portion is unavoidably reduced to flour, or middlings too fine to be purified on purifiers as now used, without committing too much waste, therefore a portion of the flour, which in winter wheat mills is the larger portion, receives very little of the benefit of purication by middlings purifiers.

(6) Believing that the flour made in the reduction of the wheat, and from the fine middlings that were too fine to be economically purified, would, if made equally pure as so-called patent flour, be of equal value, the question arises, how can such flour be made equally pure, or its purity be increased, without unnecessary waste or useless expense?

Solution: In mill products, all separations are made by form, size, or specific gravity. By form we separate the germ, first flattening it on smooth rolls, thus changing its form. By size we separate the larger impurities, using for this purpose sieves, reels and centrifugals which are mainly sizing machines. By purifiers we separate the impurities that are mixed with the medium and coarse middlings, using both size and specific gravity. Inasmuch as the flour and fine middlings made in the reduction of wheat are intermixed with impurities of equal fineness, their separation can not be made on sizing machines, such as sieves, reels and centrifugals, but as such fine impurities are of less specific gravity than flour or middlings of equal fineness, this separation must be made by specific gravity alone. The nearer the pure and the impure particles approach each other in size and weight, the more difficult is the separation. As this separation is made by air alone, sufficient space must be used that the flour may be evenly and finely distributed in the air, so that the lighter impure matter may be economically extracted, by not committing unnecessary waste, remembering that pure flour is of greater specific gravity than impure flour, and that it requires more power to lift it than is required to lift the fine impurities it contains; and the greater the height it is lifted, the more perfect the separation. Acting on the foregoing theory, I have constructed suitable appliances that have demonstrated the correctness of said theory, and having passed the experimental stage and entered the practical, every day working stage, I will say to you, flour is, can and will be successfully and economically purified, and its value enhanced thereby, and that after the proper construction has been made the additional expense of operation is merely nominal, and that the number of grades is not necessarily increased, but the purity of each grade is increased and the percentage of low grade decreased, and economy of yields maintained.

The next question is a commercial one. Will the flour, in consequence of its increased purity, be sufficiently enhanced in commercial value to pay the expense of the necessary construction, cost of operation, loss on the impure matter extracted, and leave a fair margin for profit? If it will do this, the process is a valuable one. On the other hand, if it will not do this, then it is valueless. Time will furnish the solution of this problem. Having unlimited faith in the correctness of the theory and its practical working, I have made the necessary construction to fully demonstrate its truth or falsity. And as it is written "A good tree will produce good fruit, whereas a corrupt tree will produce corrupt fruit, and is hewn down and cast into the fire," I calmly await the coming harvest, having no fear that the tree I planted is in any danger.

Review: The foregoing theory is based on the fact that the interior of the wheat berry contains dark, deleterious matter, intermixed with the pure flour portions, which as a matter of course can not be separated before reduction commences, and which in the course of reduction becomes pulverized and incorporated with the flour, and being of equal fineness with the flour, can not be eliminated by any bolting device yet invented. This impurity, together with a percentage of the finely pulverized outer coating of the berry, having become incorporated with the break flour, and not having been removed, is the sole reason why the break flour is of less value than the flour made from purified middlings. These fine, impure particles, being of less specific gravity than granules of flour of equal fineness, can be eliminated only by properly applied air currents, and when eliminated the resulting flour will be equally pure as the patent flour—consequently of equal value.

Louis Gathmann presented the following paper on "Wheat Cleaning in its Details. The Importance of Removing the Hairs and Crease Dirt," which was not read, owing to lack of time, but was included in the report of the convention:

I will be guilty of repeating the very trite but not the less true expression that "Good grain cleaning is the foundation of good milling." It has often been a source of wonder to me that this expression has become a maxim in vain to nine-tenths of the millers of every country, and it is for that reason I appear before you on this occasion to point out the great importance of removing every hair from the ends of the berry, in order to make pure flour.

I have here a number of magnifying glasses, as well as samples of clean wheat from some of the most prominent and best known mills in the country; and from experiments which any of you can make in a very short time with these microscopes, you will at once see, as a fact beyond dispute, that, even at this late date, there is little, or to say the least, not quite enough known of wheat cleaning, so far as removing the setæ or hairs is concerned; and when the importance of completely removing them is understood, the necessity will be appreciated. These hairs are of a silicious nature, are very detrimental to the baking properties of the flour and to the keeping qualities of the bread, besides being indigestible and therefore unhealthy. Besides, no one wants to eat hairs of any kind. They are a disagreeable relish at best.

Speak to almost any miller on this subject, and his answer will be: "I clean my wheat well." Still it is a conceded fact, by almost every well posted milling engineer, that not one miller in a thousand knows when wheat is properly cleaned.

The majority of mill owners are not practical millers, and are compelled to give most of their time to the commercial part of the business in buying and selling to advantage, and are therefore not fitted for studying the inner economy of flour making.

The practical miller very often has not the means, taste nor leisure for such study as is needed in order to be scientifically acquainted with every branch of the trade, although this knowledge is daily becoming more necessary as milling advances toward an exact science, which it is unquestionably doing.

I remember when this association was first formed, the knowledge of scientific milling was limited, and canopied with rosy clouds of speculation, when most of the members were uncritical and inexpert, to whom suggestions were often regarded as truths; when such a reunion as this was a sort of picnic party on the shores of the unknown, its proceedings being both hilarious and convivial. All this has passed away, and objects present themselves in well defined shapes for critical examination; and to-day the cry is, "tell us something true and useful—deal only in facts, their causes and consequences." This is the age of analyzing all things; facts are sought and theories must be established, or the utilitarian and critical will scoff at the speaker as being behind the age. I therefore address myself as a fellow worker, and give you such facts as I have discovered, so as to add my mite to the common stock of truths which we are all on the alert for.

Among the many grain cleaning machines which are on the market, there is not one that can thoroughly remove the hairs from the ends of the berry, as their samples will demonstrate, and as I have said before, they are from the leading mills that have made a reputation in the best milling sections of the country, and some of them are from members of this association, who can see and examine samples of their own wheat, and if they do examine them they will be surprised when I point out to them the following facts, which have been derived from a careful and exhaustive series of experiments: It will be found that in the cleanest sample of wheat here, very little of the beard is removed even by the best machines, except such as may get off by accident, and in the very best samples here there is not more than 20 to 30 per cent removed, leaving from 70 to 80 per cent to go with the flour.

The samples here presented are from the leading merchant mills throughout the country, including Minneapolis, Milwaukee, Chicago, St. Louis and other milling points, in both the winter and spring wheat sections. Here is a sample, for instance, of the best cleaned spring wheat from the state of Wisconsin. It will be found from measuring or counting the number of beards not removed that they will average between 60 and 140 on each kernel, or the whole hair in one length, taken on a fair average, would measure 1½ inches. The next step I took in my investigation was to discover the number of grains of wheat in a bushel of 60 pounds. I arrived at this result in the following manner: I procured the best instruments at the start. The scales were of the most delicate nature as to balance. I weighed off one ounce, or the 960th part of a bushel. I found in small spring wheat that two plump kernels averaged one grain, and by thus figuring, the conclusion deduced is from 984,000 to 990,000 grains in a bushel. Then figuring say 4½ bushels to the barrel, it would require 4,455,000 grains to make a barrel of flour. Now then, the beards on this wheat making one inch and three-quarters in length, if figures be true—and they are said to be—the length of the hairs if placed after each other, would extend over 123 miles in length. Just think of it, and this from the best cleaned sample of spring wheat that could be procured from a large roller mill.

I find the best cleaned winter wheat from a well known mill in Ohio. In this mill the old ending stone is still retained, judging from the sample before me. This is a mixture of Fultz, red winter, and a slight quantity of Michigan white. The difficulty with the ending stone is that the wheat must be graded in order to have it do good work, and where a mixture of this kind is put through with large and small grains, the small ones will pass out untouched, or vice versa. On a close examination, finding on each kernel the average length of the hair, there is fully one inch in length left on the berry. This being a plump wheat, fully 900,000 grains go to a bushel, or 4,500,000 to a barrel. This would amount to a hair about sixty-three miles long in a barrel of flour. It is told us in Holy writ that each man is supposed to eat his peck of dirt in a life-time; as to me, I'd prefer clean dirt anytime to a thousand miles or so of hair. In some of the other samples, not more than 5 per cent is removed. This, of course, is only one of the many impurities to be extracted from the wheat in order that we may not have to eat our peck of dirt too soon, but live to a ripe old age. The hairs themselves hold dirt tightly in their embrace, and it must all be removed before this impurity can be extracted.

Now, gentlemen, I come to another impurity which I feel certain none of you will question the existence of, namely, "crease dirt." If there be any doubting Thomas here who doubts of its existence, let him step over to the microscope and examine any of the numerous samples I have brought for your inspection. I can promise he will doubt no longer. There it will be found in large or small quantities, according to the kind of wheat it is.

One thing certain, there can be but one method of removing this obnoxious material, and that is by scouring or brushing the split wheat after the first break. I could say more on the necessity of this, but as my company alone own and control the patents for this process I have a delicacy in saying anything more about it. I can also show a sample of unpurified middlings, made from wheat, well cleaned, that had afterward been split, and then scoured. I think you will, after an examination, admit that a high grade of patent can be made out of this material, without the aid of a purifier. I do not advocate by any means milling without the use of the purifiers, but I do say, and do mean, that the less work those machines have to do, the more satisfactory will be the results.

I think you must admit this fact: When your unpurified middlings are dirty, and full of impurities, the break flour made while producing those middlings must also be full of dirt and impurities. Now then, the question arises, can there be such a thing as absolutely clean wheat? I fear it is not given to man to be entirely perfect. The needle is highly polished and apparently perfect, but let it be examined in connection with the sting of a bee, and the difference will be easily observed, nature always asserting its superiority over art. It is so with wheat, the nearest we can approach perfection will be only approximately. I don't ever expect to reach absolute perfection, but I think you will all admit when you examine the sample which I have here—that was cleaned on my brush scourer, that I have got as near to it, at least, as the needle is to the bee sting. With such clean wheat as I now show you, it makes little difference with what kind of a roll it is reduced, what kind of a corrugation; even the millstone, with an old common reel, will make a good clear flour.

In conclusion, I must express a wish that this meeting of your association may be as delightful and useful as any ever held. Those who remember the old-time meetings will recollect what a harvest of mutual confidence we used to gather at them, and what a glow of fresh enthusiasm we always carried away with us. And as each meeting furnishes a panoramic view of the present state of milling, so at each meeting the old and the young members are mingled in such friendly and confidential intercourse that the prospects extend both

backward to the beginnings of inquiry and forward to its possible achievement. Well trained current inquiry is always precious as sound prophetical calculation, or theoretical reasoning. We enjoy the rare privilege of assisting at all three of such meetings as this, and when we scatter to our homes, we can hardly fail to take with us something effectual for lightening and assisting us in another year's work.

The concluding paper was by Jonathan Mills on "Rebolting in Connection with Round Reels," as follows:

JONATHAN MILLS.

To the Honored President, Executive Committee, and Members of the Millers' National Association—Gentlemen:

On the 8th of April I received the following letter from your secretary:

Milwaukee, Wis., April 6th, 1886.
Mr. Jonathan Mills, Cleveland, Ohio:

DEAR SIR:—At a meeting of the Executive committee, Millers'National Association, held in Chicago, April 3, I was instructed to extend to you an invitation to prepare a paper upon "Flour Dressing and Rebolting in connection with Round Reels as compared with other systems." This paper to be read before the convention to be held at Grand Pacific Hotel, Chicago, May 12 and 13 next. I trust to receive your early reply of acceptance. Yours truly,

S. H. SEAMANS, Sec'y.

I thank you, gentlemen, for the honor conferred. It was with grave doubts of my ability to properly handle the subject that I accepted the invitation, and now that I stand before you, knowing that I am to read this paper to the most intelligent class of manufacturers in America, I feel still more doubtful of my ability to do the subject the full justice it is entitled to receive. When we take into account the vast diversity and many different systems now in active operation for reducing a kernel of wheat into flour, you will readily comprehend that it is out of the question to fully treat the subject of flour dressing and rebolting with round reels in comparison with other systems, in one brief article, further than to merely explain the merits and defects existing in the various systems now in use. It is hardly necessary to go back beyond a brief half score of years and give the various modes of dressing flour preceding our generation. I would rather some graphic writer, posted in chronological lore, would write up the history of flour-making from the earliest knowledge of the wheat berry. I think we would find that the first bolt was man's stomach, fed by an automatic feeder that gauged the quantity the bolt would properly handle to a nicety, which, by the way, is an essential and important thing to do with any system of bolting.

We will first consider the action of material being handled and bolted through our old friend and stand-by, the six-sided reel, and will here venture to say that there are at least 140,000 six-sided reels in the mills of the United States, and that nine-tenths of all our flour is bolted through them. In the face of these facts, we had better wait until the king is dead before we bury him, or write his obituary, and above all else, be sure his successor is born with a constitution of fundamental principles broad enough to successfully administer his predecessor's estate. The new king must have all the elements necessary to meet the requirements of the new order of things in his dominions. The hexagon reels were brought into general use through their ease of construction, and through the general principle of being able, by their rough, tumbling action, to act as bran dusters and at the same time as flour bolters, before such a machine as a bran duster was ever invented. The moment the bran duster was brought in as an auxiliary to the six-sided reel, the miller began to grind higher, and by so doing, he made a whiter grade of flour through the hexagon reel. The bran duster was then the millers' great panacea, and has held favor from that day to the present, and right in this class of machines lies a vast field for improvement. Some man must develop a new principle that will clean the flour off without such harsh action. Bran flour should be all gotten off the bran in enough better condition to raise its grade 25 to 50 cents a barrel. There are honors and a fortune for the inventor who solves the problem. I shall attempt it myself the moment I can spare the money, if some one does not solve the problem to my satisfaction in the meantime.

The six-sided reels can be used from cellar to garret for bolting every different grade of material in a mill, although I claim they are not properly constructed to do as good and perfect bolting as should be done, and before I am through, I hope to be able to show you that their work can be done much better by other and more practical methods. The best we can say is, that the six-sided reel has been a lumbering, cumbersome necessity. If they are overloaded, they will do clear bolting and send out rich tailings, and if they are not loaded enough, they will do specky and dirty bolting. Many millers have been known to return a great portion of the flour right back to the reel to properly load it. They would have been benefited more by raising the tail of their reel, and even blinding or shortening the cloth to a length that would meet the amount of work required of them.

The material in a hexagon reel has a very loggish, sluggish and swashing action. The material is lifted up in part by the centrifugal momentum imparted to the material by the rotation of the reel, and partly by the ribs and angularity of each flat face, traveling from a level plane to a perpendicular plane before the weight of the material is sufficient to overcome the centrifugal force imparted to it by the circular travel of the faces of the reel. The speed of the reel imparts a centrifugal force to the material until it reaches a point where the centrifugal force is overcome by the weight of the material. When it has reached that point, gravity and the motion of the reel impart a centripital movement to the material, and it is cast downward and inwardly toward the center of the reel, sometimes under, sometimes over, and sometimes square on to the reel shaft. Where it is cast under or over the shaft, it strikes the cloth on the lower face. When it is in a level or partially level position, it strikes the cloth with great force. The material is cast off intermittently in heavy, bulky volumes. If a six-sided reel is running 30 revolutions per minute, there are 180 of these volumes turned loose, with a heavy thud, back on to the lower part of the reel every minute. A reel will do far better and clearer bolting where the fall of the material is broken by striking the shaft. The 30 or 32 inch six-sided reels are run at various speeds, from 25 to 35 revolutions, on an average, or probably 75 per cent are run at 30 revolutions. At 60 revolutions they would not do any work to speak of, but would swing the material around and hold it tight out against the cloth by centrifugal force. Wherever a six-sided reel is running with a very light load, it should be speeded down to a motion that will do the work properly, in place of returning material to give it load enough. You can in every instance make wonderful improvements in your flour, where the reel is too lightly loaded, by reducing the speed.

In about all the gradual reduction mills in this country the hexagon reel is used as a scalper for the different wheat reductions. These scalpers are covered with wire cloth of various degrees of fineness. There are a few instances where silk gauzes are used on the last two or three reductions, and those that use silk cloth for the purpose know it pays them to do so by the better results obtained. I wish to say here that the wire-covered scalping reel is also a scouring machine, and is of great detriment to the break flour, from the fact of the scouring action of the chop on the wire, wearing off the enamel of the berry, as well as the fibrous, filmy edges of the bran particles, into a fine and almost impalpable powder that imparts a dirty, nasty looking shade to the break flour, for it is as fine as the flour and will bolt through the cloth with the flour. It is the very worst and most contemptible piece of machinery in any mill. Their scouring qualities are so assiduous that they never let up, no matter how badly worn the wire becomes. They knock anywhere from 10c to 20c per bbl off of your break flour, and increase the quantity of low grade, as well as lower its quality. The action of a six-sided reel on any material, no matter whether it is covered with a wire or silk cloth, has the same feature of scouring off objectionable matter that a reel of gentler action would not scour off. But a wire covering is far worse than silk.

The time to clean your wheat, gentlemen, is before the reductions commence. The scouring action does not end with the wheat break scalpers. It is carried on through the other reels in scalping out your flour from the middlings, and even in rebolting flour on a six-sided reel, the scrubbing action is still going on, caused by the weight of the flour falling in bulky, intermittent masses. Open the doors of your bolting chests, and listen to the thump of the falling flour inside the reel. It falls from the distance of each rib the entire length of the reel, about three falls per second, with a swash, swash, swash, thump, thump, thump. This action in a reel is all wrong in principle as well as in practice, but we have managed to get along with both the action and principle for a long while, the same as we formerly got along with our slow stage coaches. The question is not "whether six-sided reels will do the work," for we know they will. The question is, "What other system will do it better?" Will a system of centrifugal reels do it? We will look briefly into their fundamental principles and see whether they are legitimate. It is hardly necessary to describe their construction further than to say that they contain an open cylinder of flyer blades, rapidly revolving within a slowly revolving hexagon, octagon, or round cylinder of bolting cloth that is traveling in the same circumferential direction.

There are probably from twenty to thirty different manufactures of centrifugal reels in this country, all embodying the same general principle of revolving flyer blades, but varying in the number of blades anywhere from 4 to 40, and ranging in revolutions from 100 to 250 per minute, a very liberal range in number of blades and revolutions, we must admit. But nevertheless they are facts. The principle of this invention lies solely in the combination of the flyer blades revolving rapidly within a cylinder of bolting cloth. The man that first applied this combination is the inventor. All others from that day to the present that claim to have invented a centrifugal reel, have only applied well known mechanical devices in some jim-crack manner to make their pretended invention different in mechanical construction from that of the other fellows, but they have all stuck perniciously to the original noxious flyer blades, simply because it is easier to imitate than originate. Now, with all these different constructions, what can they do wholly in a system of flour dressing? Can they be used as wheat scalpers from your different reductions? No; their scouring action is too severe. They would make too much break flour, and ruin it with the bran scourings. So these facts kill them in the first step of the system. But bear in mind, the hexagon reels will do wheat break scalping.

Can centrifugals be successfully used as scalpers to scalp the stock from the wheat break scalpers? No, they cannot, for the reason that they would wear out a silk bolting cloth every day, and they cannot be made to send the tailings out dustless, as their action is so severe that they are constantly scouring and reducing the middlings to flour clear to the end of the cylinder. So we see they are no good for the second step in the system. But still bear in mind that hexagon reels will do the work.

Can centrifugals be used for grading your middlings? No, they cannot. They scuff and scour too much flour off that goes with each grade to the purifier and is pulled into the dust room. That condemns them for the third step in the system. Again, don't forget that hexagon reels will grade your middlings.

Will they answer for bolting crushed or sized germ, or coarse middlings from smooth rolls? No, they are too severe on that stock, and break up the partly flattened germ too much. So they are not fit for the fourth step in the system. We again call in the hexagon reel, which we know will do it.

Can they take the crushed middlings chop of any grade of middlings from smooth rolls and bolt the flour out, and at the same time make a clear, defined cut-off and send the tailings out dustless? Or can they use a piece of coarse tail cloth of proper mesh to make a separation of fine middlings, and even then send the tailings out dustless? I say I have never seen one that can do it. A hexagon reel will. The reason why the centrifugal will not, is simply from the following comprehensive and scientific facts. All flyer cylinders are simply formed with a series of long, narrow fan blades, and the flyer cylinder is simply a long fan. Now, it is a well-known mechanical law, that when you revolve them, they will discharge the air from their center outward in every direction from the axis around which the fan blades revolve. It is another well known law, that all fans discharge their strongest current right at the center of the fan; and it is another well known law that there is nothing gained in volume of air discharged from a fan after it reaches a certain width of face. Or, in other words, a fan 8 inches wide, running 200 revolutions, the speed of many of the centrifugals, will discharge just as much air as if it were 12, 20 or 80 inches width of face. The air rushes along inside of the open center formed by the flyer blades until it reaches the longitudinal center midway between the ends of the flyer cylinder, until it has a compact volume strong enough to overcome the surrounding atmospheric pressure. It then discharges its air out in volumes according to revolutions and depth of the fan or flyer blades. Now, this discharged air has to be supplied from some source, and as the ends of the reel are closed, where can it get in to fill the vacuum? It is compelled to use its own air, and that air has to be supplied from the discharged air, and that discharged air has got to travel back from the center each way toward head and tail of the reel; and as it cannot get into the center each way toward head and tail of the reel, and as it cannot get into the center around through the ends of the reel, it forces its way in through the flyer blades. As the flour and middlings, or whatever is being bolted by the reel, is heavier than air, it is slammed out against the cloth with great force. Now, these return currents of air are carrying fine, light flour back each way from the center. And as it is in a more rarified air at the tail, it is dropped down into the cut-offs. This very fact of not being able to make a clear and defined cut-off alone condemns them for any spot or

place in a scientific system of bolting. I do not know of a single instance where the advocates or manufacturers of centrifugal reels claim to have put in full systems of centrifugals, but what all the important and difficult separations are made on hexagon reels. There is probably not a miller in America that reads the milling journals, but what has read glowing descriptions of the Eldred mill at Jackson, Michigan, giving its wonderful capacity over what it was built for, and describing its machinery and the elegance of its arrangements and appurtenances, heralding it as a full centrifugal mill. But I notice they were very careful to give no information as to the number of centrifugal reels used. Now, gentlemen, this mill was built under the fostering care and supervision of the champion manufacturers of centrifugal reels, and buiit as a show mill. And the very best they and their experts could do was to place 12 centrifugals and 20 hexagon reels in it. I call this special mill in solely to substantiate the facts as they exist at the present stage in the art of milling with the so-called full centrifugal system, and not in disparagement of the mill or its owners. Neither do I say that centrifugal reels cannot be used to bolt or rebolt certain material in a system of bolting, but I deny that they are any improvement over the hexagon reel, save in the room they occupy. We hear many of the makers of centrifugal reels advocate their use as scalpers on the last or last two reductions of wheat. In this material, they are only a short cut for a quick finish, at a ruinous expense of the flour. They are disintegrators, and could be used to better advantage by first sending these breaks to a more gentle bolter, and scalp out the flour in a much purer condition, and then if they want to disintegrate the bran that is sent out of the gentler bolt, let them pass it through a centrifugal reel, and then to a bran duster as a final finisher, and treat the final finishing of the fine feed in the same manner. Right at this particular step of milling, the centrifugal reel is a useful adjunct, but just as good results can be obtained by passing the stock at this stage through two consecutive bran dusters, and still better results can be obtained by passing this kind of stock first through one bran duster, then through high-speed smooth rolls, and then again through a bran duster.

By this manner of treatment at your final finish, you will get an absolute, clean finish, and if it should not be an absolute, clean finish, you have not made your immediately preceding reductions close enough. As re-bolters, you are compelled to take the flour the full length of the centrifugal reel, on account of the air currents depositing good flour with the cut-offs. Every bolting device or reel in a mill that is put in for bolting any grade, should do it so perfectly as to make it necessary to cut off a portion of flour that has passed through the cloth at the tail of the machine; and I find in hundreds of instances that it is necessary to use frequently as coarse as 8, 9 or 10 cloth for a portion of the way on the tail of the reel to take the middlings out that has been forced through the first bolting reels by the rough treatment it has received, as mostly all flour is first bolted from chop that has previously been scalped through cloth as coarse as from 6 to 10 mesh, and some of the small mills bolt flour right from the stone to the packer, and in many roller mills they bolt much of their smooth roll chop right from the rolls to the packer. Rebolting from this manner of bolting, makes it arbitrary to use a tail cloth on your rebolters of proper mesh to scalp through the fine middlings, in order to scalp off the coarse impurities over the tail. Now, a bolt should in every instance be able to dust out the flour clean before it reaches this tail cloth, and have it so completely done that you can use a few cut-off slides before it reaches the tail cloth. If you cannot do this, you are overloading the bolter, or else it is not clothed to do its work properly; and this is the standard for capacity that should govern all rebolters. If a bolter has not the above qualities when the atmosphere is in a normal condition, it governs the miller, in place of the miller governing the bolter. You all know how difficult it is to properly control your bolting in a humid atmosphere, and then to strike a damp lot of wheat in addition to the atmosphere being saturated with moisture almost to the point of raining, and this going on for days. These are the conditions that require cut-offs in reels. If they have been loaded to a point requiring every inch of cloth when the atmosphere is dry and the wheat in good condition to mill, when the atmosphere is humid and the wheat damp, you are compelled to cut the capacity of your mill or run ruinously rich tailings. Therefore, any bolting device that is controllable by the cut-offs, has great advantages over a centrifugal reel. This one fact is fatal to making a scientific and satisfactory success in rebolting with centrifugal reels. Even if they should get centrifugals so constructed as to be able to send the tailings out dry, they can not get over the air currents, and that alone will prevent a defined cut-off.

Gentlemen, I have made the comparison of hexagon reels with the centrifugal in plain language, and have given my reasons for every statement and conclusion. These reasons are incontrovertible facts. The fundamental principles involved in centrifugals are so utterly at variance with common sense and the present stage of the art of milling, that I have no patience to further prove their utter unfitness for a full or even partial system of flour dressing or rebolting, and I deny their right to be classed with round reels.

I will now endeavor to explain the defects and bolting qualities of round reels. I am the inventor of a round reel called a Universal flour dresser, but I want you to understand that it also has its bad features, and I shall endeavor to show them up, as I believe I am a more severe critic of my own inventions than my competitors can be, for the reason that I am a closer investigator than they are. I do not take anything for fact unless I can prove it. Round reels are not new in the art of flour-making, but it is difficult to describe the many differences in their various constructions without drawings or sketches. There are two or more round reels in Mr. Damp's mill at Ashland, O., 14 or 16 ft long and about 20 in. diameter. These reels have 6 ribs running lengthwise of the reel, same as a hexagon reel. At intervals of about 4 inches along each rib are little pins extending out from the ribs. These pins are so set on each rib that when a heavy, stiff wire is wound around the reel from one pin to the next, it forms a spiral from head to tail that supports the cloth. Mr. Damp informs me that these reels have been running eight years with the same cloths on. If I remember rightly, these reels were making 14 revolutions per minute when I examined them. They are very slow bolters, and therefore impractical in a system where capacity is required. The arms and longitudinal ribs in this form of round reels are the only safe-guards it has to prevent it tailing out little flour balls. Any round reel that is not provided with some arrangement of the kind that will disintegrate or burst up the flour balls, cannot send out the tailings dustless. I have been vindictively assailed through the columns of the *American Miller* by one of the advertisers of a round reel for publicly and privately making this statement. I shall always feel justified, however, in publishing or giving my experience in bolting flour publicly or privately, and I wish to here repeat in emphatic terms, that a smooth round reel with nothing inside of the cylinder of cloth to prevent the flour from balling up, cannot be made to bolt soft, sticky flour without sending flour balls over the tail, from the size of pin heads to the size of peas, or even marbles. They will not handle any kind of stock that is 50 per cent flour without balling over, unless they are handling a very small quantity of stock. The damper the wheat and atmosphere, the more flour balls they will send over.

My universal flour dresser has a wooden drum cylinder inside a cylinder of bolting cloth. The cylinder of bolting cloth is supported on and carried around with and at the same speed of the drum eylinder. They revolve at a speed not greater than that of a hexagon reel, which makes them their equal in the matter of motion. They will scalp wheat breaks as clean as hexagon reels, and do it in a more gentle manner, thereby making less scourings in that operation. They will scalp out the flour from the chop that is scalped through the wheat-break scalpers. They will grade the middlings without scouring off a large amount of flour to be sent to your purifiers and pulled into your dust rooms. They will make perfect separations of your germ stock, without breaking up the flattened germ as much as a six-sided reel will. They are the most perfect rebolters of any device so far invented that I know of. You can cut off as many grades as may be required. The cut-offs are clear cut and defined, as the reel does not create air currents to intermix good material with poor, or poor material with good. They have capacity far greater than that of hexagon reels or any other bolter I know of, and require less power to do the work. The inside cylinder is so constructed as to absolutely prevent the formation of flour balls. They will send out the tailings dustless on any grade of material. The action of the bolt is such that the material is rapidly and gently being delivered from the cylinder to the cloth in the best possible manner to insure rapid bolting. They require less attention than any special machinery in a mill. They will handle any and all material in a mill in a far better and more profitable manner than any other system or combination of systems that can be devised from other bolters.

We have a number of these reels in different mills that are bolting the break flour direct from the scalping reels and scalped through No. 8 cloth. I know one of these reels that is taking this kind of chop that formerly required four 18-ft reels to do the work. This particular reel is clothed with Nos. 12 and 13 cloth, and is bolting and sending from 10 to 12 bbls of flour through these numbers of cloth direct to the packer every hour. In many other respects they are doing what required two 18-ft reels to do. I mention these facts to show you that their capacity is immense. Now, gentlemen, they require a much less number to do a given amount of work than any other known machine or bolt, and require less space and power. If any known device is capable of superseding and taking the place of the hexagon reel, this is the machine that will most surely do it. Our trade is rapidly on the increase. The machines are making their own friends wherever placed. Our orders are largely from those that have tested the reels. We have a large number of complete or nearly complete and full systems of these bolts in use, and we seldom hear a complaint from those who are using them. We keep no traveling agents to represent or misrepresent us. We have placed between 600 and 700 of these machines with hardly a single error. This is the machine that will gradually and surely supersede the hexagon reel, if it ever is to be superseded by any of the present and known devices. I thank you, gentlemen, for your attention.

An invitation from the Chicago board of trade to use the call room of the board for the meetings was presented and a general invitation to all members to visit the board. No formal action was taken upon either.

C. M. Wicker, of the Chicago Merchants' association, was presented to the convention, and made an address urging upon all exporting millers the necessity for using sacks of a better quality with a view to preventing freight discrimination. The sub-executive committee took charge of the matter without formal reference.

* *

After the reading of the papers the committee on nominations reported as follows: For president, John Crosby, of Minnesota; for first vice president, C. H. Seybt, of Illinois; for second vice president, Homer Baldwin, of Ohio.

Mr. Greenleaf asked the members on behalf of the millers of Minnesota, to vote for the presidential nominee, and said that the election of Mr. Crosby would be regarded there as a compliment to the state and to the late C. C. Washburn.

On motion, the secretary cast the vote of the convention for these three gentlemen and they were accordingly declared elected.

Mr. Crosby was conducted to the chair by Mr. Greenleaf and Mr. Ellis, and briefly thanked the convention for the honor conferred.

Mr. Smith moved to adjourn, if there was no further business before the convention and the meeting then adjourned *sine die*.

* *

[The report of the treasurer was read and adopted Wednesday, immediately after that of the secretary, but we were obliged to omit it from its proper place in the proceedings because copy was delayed and it was necessary to procure a duplicate from Chicago which did not arrive until after the form containing the first day's proceedings was printed.]

TREASURER'S REPORT FOR FISCAL YEAR ENDING JUNE 1, 1884.

June 1, 1883, balance on hand	$4,361.34
Received from Indiana	70.00
" " Maryland	285.00
" " Nebraska	7.50
" " Missouri	160.00
" " Pennsylvania	160.00
" " Virginia	25.00
" " Montana	5.00
" " California	145.00
" " Delaware	30.00
" " Tennessee	20.00
" " Texas	45.00
" " Oregon	70.00
" " Wisconsin	800.00
" " Michigan	175.00
" " Kentucky	10.00
" " Kansas	210.00
" " Ohio	217.50
" " Iowa	90.00
Total	$6,886.34

DISBURSEMENTS.

Postage	$4.00
Stationery	1.00
Printing	102.10
Traveling and hotel expenses	42.10
Exchange	4.25
Stenographer	25.00
N. C. Gridley, examination Patent Wagon Dump	25.00
Office expenses	2,000.00
B. F. Thurston, examination Mechwart Patent	750.00
Balance on hand	3,932.89
Total	$6,886.34

S. H. SKAMANS, Treasurer.

MILWAUKEE, June 1, 1884.

TREASURER'S REPORT FOR YEAR ENDING JUNE 1, 1885.

June 1, 1884, balance on hand	$3,952.89
Received interest	28.00
Total	$3,960.89

DISBURSEMENTS.

Postage and telegrams	$4.97
Stationery	.80
Printing	157.85
Traveling and hotel expenses	33.00
Exchange	.25
Freight	1.08
Office expenses	2,000.00
Balance on hand	1,762.94
Total	$3,960.89

Milwaukee, June 1, 1885.

TREASURER'S REPORT FOR YEAR ENDING JUNE 1, 1886.

June 1, 1885, balance on hand	$1,762.94
" " Received from New York	2,370.00
" " " " Geo. Harding costs	501.58
" " " " Interest	480.00
" " " " Wisconsin	700.00
Total,	$5,814.52

DISBURSEMENTS.

Postage and Telegraph	$ 7.45
Stationery	15.00
Printing crop reports, etc	177.75
Traveling expense committee to Washington on account rebate regulations	272.96
Traveling bill N. Y. State, for 3 years	230.82
Traveling expenses executive committee	54.05
Exchange	3.93
Express charges	1.00
Paid ½ bill Judge Selden ac. Denchfield	200.00
Office expenses	2,000.00
Balance on hand { in bank 835.56 / loaned on cal l 2,000.00	$2,835.56
Total,	$5,814.52
Balance	$2,835.56
Balance from Minnesota	4,480.00

Milwaukee, May 12, 1886.

MEETING OF THE EXECUTIVE COMMITTEE.

Immediately after the adjournment of the convention a meeting of the executive committee was called for the purpose of electing a sub-executive committee and the transaction of such other business as might come before it.

After the meeting was called to order, upon motion of Mr. Arndt, the following sub-executive committee was nominated and elected: C. H. Seybt, Illinois; Alex. H. Smith, Missouri; S. H. Seamans, Wisconsin; J. A. Hinds, New York; F. L. Greenleaf, Minnesota.

The sub-executive committee then retired for the purpose of electing a secretary and treasurer and after a brief absence returned, and the chairman announced that S. H. Seamans had been elected secretary and treasurer and that his salary for the ensuing year had been fixed at $1,200, the decrease from the former salary having been made at Mr. Seamans' own suggestion. He also announced that in view of the fact that Mr. Crosby, the new president, was not familiar with the workings of the association in the past, it was desirable that he should have the assistance of some one thoroughly familiar with the history of the association and with the work of the sub-executive committee, and that C. M. Palmer, editor of the NORTHWESTERN MILLER, had been elected assistant secretary without salary.

On motion of Mr. MacGill the executive committee went into session again and Mr. Seybt offered the following resolution:

Whereas, In view of the fact that it is necessary that notices of meetings, assessments, and decisions of the sub-executive committee often require immediate publication in a manner that will insure their reaching all members of the association speedily, and there being no weekly milling publication that can do this so effectively as the NORTHWESTERN MILLER, be it therefore

Resolved, That the NORTHWESTERN MILLER be named as the official newspaper of this association, and that the secretary be instructed to publish therein all notices, proceedings and all other matters relating to the affairs of the association.

The motion was seconded by Mr. Seamans, who stated that it was necessary for the association to have some means of reaching its members in the quickest and most public manner possible, and as the NORTHWESTERN MILLER had shown great enterprise and had been at considerable expense in the past in obtaining and disseminating to the members of the association, and the milling public generally, information of interest to them, this recognition of its position is due to it.

The resolutions were unanimously adopted and the committee adjourned.

JOHN CROSBY, President.
S. H. SEAMANS, Secretary.

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The Missouri State Millers' association held a meeting at 9:30 a. m., May 14 at Chicago. A. M. Carter presided and George Bain acted as secretary pro tem. and submitted Secretary Kirk's report, which was received and a committee was appointed to audit the statement of receipts and disbursements. A resolution of thanks to Secretary Kirk was adopted unanimously. The following officers were elected: President, A. M. Carter, Hannibal; first vice president, W. H. Waggoner, Independence; second vice president, H. B. Eggers, Warrensburg; secretary, H. F. Kirk; executive committee, E. Goddard, St. Louis; Frank Hill, Carthage; M. Harrison, Glasgow; member national executive committee, Alex. H. Smith. After which the meeting adjourned.

ON TO JACKSON.

There was a general and cordial acceptance of the invitation of the Geo. T. Smith Middlings Purifier Co., who asked the convention to visit Jackson and partake of its hospitalites. As soon as the convention adjourned Thursday afternoon, there was a general pack-up all round, and such was the enthusiasm displayed at a prospect of a general good time that many who were wavering between going home and going to Jackson, decided on the latter and enrolled themselves among the occupants of the special trains which left Chicago, one at 4 o'clock in the afternoon of Thursday, and the other at 10:30 in the evening.

About 300 gentlemen embarked for Jackson and from the time the trains pulled out of the Michigan Central depot until the final "good bye" was said at Jackson, Friday night, there was not a single person in the party who failed to enjoy himself. At least if there was such a candidate for dime museum honors, he did not reveal himself. The excursion was a thorough and complete success in every particular. Every detail was perfectly arranged to give the fullest amount of enjoyment to the participants, and the enthusiasm which began in Chicago increased with every hour and culminated Friday night in a general jollification and good time.

The train which left at 4 p. m. was accompanied by Geo. T. Smith in person, and arrived in Jackson in the evening. It was met by the Geo. T. Smith brass band at the depot, and the travelers were escorted to the Hibbard house, where they disposed of themselves and proceeded to make up for lost sleep in order to be fresh for the next day's campaign. All those who expected a quiet night went by this train. The night train which left Chicago at 10:30 o'clock carried the rest of the party and consisted of seven sleeping cars. Geo. Bennett, secretary of the Smith Co., took charge of this train and labored indefatigably to have every excursionist comfortably fixed. A disagreeable rain was falling when the party started for the depot, but it had no effect whatever upon their spirits, which were decidedly high. A merrier crowd never went out of the depot. Those really desiring to go to sleep sought the quieter cars, but no one got to bed much before midnight. Car No. 4 carried the banner, and if any of its occupants slept that night, they did so under protest. Geo. Bain was duly installed as king of the car, and the fun enjoyed therein was unlimited.

Beside Mr. Bain, car No. 4 contained the most of the St. Louis delegation and the executive committee. Mr. Seybt was pretty thoroughly tired out and at an early hour sought a state room, where he remained undisturbed until morning. Mr. Seamans claims to have secured some sleep in his berth in No. 4, but if he did it was through no fault of his fellow travelers. Mr. Bain claims that Mr. Sparks, of Alton, would not let him sleep and that he had to sit up to keep the boys quiet. Miller Pindell, of Carter & Pindell, Hannibal, borrowed a bright red smoking jacket of Mr. Bain and proceeded to organize the Car Painters' Union, in which he was ably seconded by Harry Richardson. These anarchists took possession of the train and along toward daylight secured the conductor's lantern and proceeded to take up the tickets of every man on the train, asleep or awake. Mr. Bain says that he had been in bed and asleep for some time when he was awakened by a delegate from the Presbyterian car, sent to inquire whether kings up didn't beat three deuces. The gentleman from St. Louis stated that he was no judge of such matters, and referred the anxious inquirer to the next berth, which was occupied by Mr. Sparks, who was courting coy repose.

The journey was full of incident and passengers by both trains had many amusing and instructive reminiscences to relate when all the excursionists met Friday morning. The day was passed in visits to the Eldred mill, the purifier works, the penitentiary, the Knickerbocker shops and the different manufactories of which Jackson boasts a large number. As many of the delegates as desired to do so were given an opportunity to drive about the city and suburbs and thus passed the day, receiving both amusement and instruction. The early evening was devoted by every one to a visit to the purifier works, which were running in full force by electric light, and while all the visitors were assembled there a fire alarm was turned in which demonstrated very fully the efficiency of the Jackson fire department.

At 9 o'clock p. m. the visitors were taken in carriages to the banquet hall, which was very nicely decorated by Mr. Winn of the Smith company. About 375 guests sat down to the banquet at Assembly hall, the galleries of which were filled by the citizens of Jackson. When the cloth was removed, Mr. Gibson, counsel for the Geo. T. Smith Purifier Co., arose and said:

Gentlemen, Mr. Smith has requested me to conduct some of the exercises here to-night. Why he did, I can't tell, except that he is like every one else—when they get into trouble, they call on their attorney. In behalf of Mr. Smith, I extend to you a hearty welcome, which is shown by these flowers draped with nature's dew and emblematical of the good wishes of our citizens.

I might, perhaps, surprise our citizens if I were to tell them the amount of wealth that this assembly represents. It is composed of men who add more to the wealth and prosperity of the country than those of most other businesses. We are glad that we are connected with such an industrial class, and no formal words of mine can extend to you that welcome which we feel from our hearts for you all. We feel honored and flattered by your presence. There may, perhaps, be a few formal toasts, after which we wish you to take the reins in your own hands and conduct the further proceedings in your own way. The first sentiment will be: "The Millers' National Association, which by its wise action and counsel has made American milling the best in the world." I call on Mr. Crosby to respond.

Mr. Crosby, on arising, was received with cheers. He said: "Gentlemen, I know that I echo the sentiments of every member here when I thank Mr. Smith for his hospitality. I am not, as you must all know by this time, a public speaker. If I were I might, perhaps, express in more eloquent language my appreciation and that of all the visitors to your beautiful city, of the kindness and cordiality with which we have been received. But I assure you that no language, however eloquent, could be more sincere than that which I employ. The industries of Jackson and its beautiful homes have made an impression upon all members of this association whose privilege it has been to see them, which will not soon be effaced. Let me propose 'The City of Jackson. May its citizens enjoy health and prosperity equal to the measure of our good wishes.'"

This was responded to by Mr. Bennett, the mayor, who spoke substantially as follows: We have opened the gates of the city and allowed you to come in. It is true we had some misgivings about allowing the Presbyterian car, but we had none at all about No. 4. It was not until we discovered that it contained Mr. Bain and Mr. McCann, that we said, "let them enter." And I am here now to welcome you and extend the hospitalities of the city of Jackson. If I am right, within the past few years the process of reducing wheat to flour has undergone a radical change, and I understand that the beginning of the improvement which has led to its present perfection is due to your host of this evening, Mr. Geo. T. Smith. His latest device may be called the milling *mugwump*, as it is the *best bolter*. I again extend to you all a hearty welcome, and hope your trip may be both pleasant and profitable.

Mr. Seamans was next called upon to respond to the toast of "The Milling of To-day." Mr. S. excused himself from making a speech on the ground that he had been kept so busy by the convention, the executive committee, the Downton suits and the mill manufacturers that he had no time to even collect his thoughts about anything else, particularly when taken by surprise in this manner. Of course he knew well the difference between the miller of half a century ago and the miller of the present time. The miller of to-day has very little trouble in making good flour and plenty of it, but he sometimes has a good deal of trouble in making money by doing it. In behalf of the Millers' National Association we extend our hearty thanks to our host, and leave Jackson with the utmost friendliness and good wishes for all with whom we have come in contact, especially Mr. Geo. T. Smith.

Ex-Governor Blair was next introduced as the great "war governor" of Michigan, who responded to the toast of "Our Manufacturing Interest and Its Relation to Our National Prosperity." He said: I have an especial pleasure in being here this evening with the Millers' National Association, but had no thought that I would have been called upon to speak. I feel as Mark Twain did when he congratulated himself that of all the subjects in the world the one he was asked to speak about was the one he least understood. I am glad to meet you all. I have come to understand that nothing can be accomplished without an association. I remember myself the ancient mill to which the grist was brought on the back of a mule or a horse, and brought home in the same manner. Every business to-day is, of course, vastly improved from half a century ago, but none more than milling. As an industry it has grown faster and faster, but the great problem of our time and the great problem of all time is labor and industry. I remember when the shoemaker took his kit with him and traveled through the country making shoes. All this has passed away and great bodies of workmen gather together and do all this work in an immense factory, and now we have a new problem which has to be dealt with all over the west and southwest. Everywhere that this problem presents itself for settlement there is some common ground for it, and there should be some common ground or method of coming to an understanding. The time has come when the resort to violence and bloodshed must be put down; they are no remedies. There is a government in the United States, the best government in the world, and every loyal man is bound to respect its laws and not resort to violence. Every man here has a voice in the making of the laws and it is his duty to see that they are respected, and if they don't meet the views of every one they must have patience. There is no other way this question can be settled. If manufacturing industry is to thrive here and keep up with the times, the law must be upheld. There can be no "monkeying" with the question. We must have statesmen, and not demagogues, who will attend more to honest legislation than to securing votes for re-election. I say to you, remember my last word—beware of the demagogue.

The press was the next toast, and David Ranck, of the *Millstone*, was called on to respond. He said: "Gentlemen, I was never more astonished in my life than when I heard my name mentioned just now for a response to a toast. Why I should be called on to respond to a toast of this nature is beyond my comprehension. If I were the most able and erudite of the profession, I should not refuse to respond. I will say, however, that but for the milling press in particular, as I suppose that the press referred to, milling, would not be so far advanced as it is at present, and we hold ourselves responsible for the revolution that has taken place within the past few years. We propose to continue the good work by keeping the miller posted on what he ought to do, and the millfurnisher busy in supplying him with the latest and most approved machinery. Gentlemen, I thank you."

The further proceedings were left in

the hands of the National Association, and Geo. Bain was called on to preside. He said: Gentlemen, if anyone had told me a few years ago that I would sit at the head of a table with Rodney Mason on one hand and Geo. T. Smith on the other, I would have put him down as a fit subject for a lunatic asylum. But now, gentlemen, I have changed with the times. I think Rodney is an 'evergreen' and Geo. T. Smith a 'daisy.' For a while to-night I felt a little hurt when I heard hard words against car No. 4. Now, let me tell you, that car No. 4 was a decorous, well conducted car, and knew enough to keep on the straight track.

Now I will say here that when you come to St. Louis we will treat you well and "blow you off" in good style. Of course it is not so much of a milling centre as it used to be, since Minneapolis sprung up. They do too much blowing there for us. We believe that had it not been for George T. Smith, who kindly sued us, we would have no Millers' National Association.

Rodney Mason was next called on, and spoke substantially as follows: Gentlemen, I think but for your humble servant that you would not have either a milling press or a millers' association. The latter was gotten up to fight, and the former to show fair play and tell how it was all done. This very fight has been the life of milling and has changed the whole thing. The miller of to-day is as different from the miller of a few years ago as the machinery of to-day is from that of ten years ago. I say that I don't think there is a miller in the land but is better satisfied with himself since the advent of George T. Smith's machinery, and since he recognized its merits. He has built up this establishment of his, which is not only the pride of Michigan, but the pride of the whole milling fraternity of the United States. I will say this now to this association and it is greatly to their credit, that in the contest which I had with them, I don't know of an instance on either side where a trick was resorted to. I will now speak of one whom I am sorry to hear is not enjoying such health that he is able to be with us to-night—I refer to Mr. Christian—I have never rceeived anything but kindly treatment at his hands.

The health of Mr. Christian was then drank, all the guests standing in honor of the subject of the toast.

Mr. Sparks next spoke about car No. 4, and said it was a very good car, that he hoped to go home in it. He then reverted to labor and capital and pointed out Mr. Smith as an example as to what labor may accomplish. Fifteen years ago Mr. Smith was a working miller. Now he was able to furnish a grand banquet like this. He worked hard and zealously, and to-day he is among the largest manufacturers in the land. While such things can be accomplished in a country like this, there can be no danger to capital by true men who love the constitution and the laws. Mr. Smith was an employe and now he is an employer on a large scale. Every true American can rise step by step in this way and if he does not rise on a large scale he can at least reach a competence. I feel a little proud this thing can be done in America and we have the proof here in Geo. T. Smith.

Mr. Seybt, of Highland, Ill., was next to speak. He said: "I am sorry that I can not express myself as I would wish, especially as the English language is an acquired one with me, but under the circumstances I can't help saying a few words. Thirty years ago yesterday I landed in Chicago. I was 16 years old, and I can assure you, gentlemen, I did not have the proverbial 75c in my pocket. I was without one dime; I had no friend or relative; I had no one who cared for me. I was left entirely to myself to fight my way alone. The fact that I am called on to speak here shows some success, but it is not my merit. I owe it all to this great country with its great, liberty-loving, mother heart. I wish to say, and may I never forget, that this country was a mother to this orphan boy, and I say that no anarchist can be allowed to raise his head against this glorious mother or interfere with her liberties, and I, for one, will be the first to help put them down."

Mr. Igelhart, of Indiana, was next called on, but regretted he was no speaker. He, however, would say that not only the Millers' National Association, but the entire millers of the country were indebted to Geo. T. Smith for the improvements which have been made in milling in the last dozen years or so.

Mr. Palmer, editor of the NORTHWESTERN MILLER, was next called on, and said that he was very much pleased to speak for his class, the only one for which there had not been a word said during the evening, namely the capitalist. "He must," he said, "be a capitalist, because he had talked with a great many millers during the convention and they all said that times had been pretty fair for the past ten years, but they had not made any money for themselves. The machinery men had been and were getting it all. And in talking with the machinery men they say that they have sold lots of machinery and made money, but they have not been able to keep any of it, for the reason that the newspaper men have taken it all for advertising, so that he was convinced that he must be a capitalist, and was glad to take his stand with Jay Gould, Mr. Vanderbilt and Geo. T. Smith."

Mr. McCann, of Nashville, was called on for a speech, which was so full of dry humor that the stenographer was compelled for the moment to forget his profession and laugh with the entire audience. Mr. McCann had only one fault with Jackson, and that was that he had to drink too much water to get at a very small quantity of whisky. It was different in his country, he said, and would be glad to demonstrate it to any of those present who paid him a visit at any time.

Col. W. L. Barnum was next called on. He said: Mr. Chairman and Gentlemen—I am surprised that you have honored me in this manner, and I assure you in all candor that I never could make a good impromptu address without some time in which to prepare it. Personally I feel highly pleased with my pilgrimage to this beautiful city, and am very much gratified at the right royal manner in which I have been entertained. I have no hesitation in stating that I voice the sentiments of all the guests here when I offer this toast in honor of our worthy host, Geo. T. Smith. Gentlemen, fill your glasses to the brim. May the pleasure we have enjoyed at his hands return an hundred fold to bless him, and may this symposium be to all of us the best middlings purifier."

This closed the banquet, and the guests returned to Chicago at 12 midnight.

An impromptu meeting was held on board the train on the return from Jackson to Chicago, at which the following resolutions were proposed, and adopted amid enthusiasm and unanimity:

Resolved, That the Millers' National Association feels under great obligation to the Geo. T. Smith Middlings Purifier Co., for one of the pleasantest days ever spent since the association was formed. The idea of inviting the whole convention to visit Jackson, over 200 miles distant, was indeed a happy thought. It was not only a generous offer, but was so well managed in all its details that every participant enthusiastically pronounces the excursion a grand success. Special thanks are hereby tendered to Geo. T. Smith, personally, and his able corps of assistants; to his band, those splendid boys in blue; to the citizens of Jackson; to the Michigan Central R. R. Co.; in fact, to all who contributed toward the entertainment of the guests.

It was moved and seconded that this resolution be passed and spread in full upon the records.

The motion was declared carried.

NOTES — CHICAGO, JACKSON AND EN ROUTE.

The corridors of the Grand Facific were constantly thronged with a concourse of millfurnishers, machinery men, newspaper representatives and others interested in the convention and its members. For the time being all subjects of difference were dropped by mutual consent, and the traveling missionaries of the various manufacturers buried the hatchet and met and mingled in one harmonious and happy whole. The bar did an extensive business in temperance drinks, and the cigar stand was nearly obscured from view by the clouds of smoke about it. It was a time for genuine good feeling and jollity, and every one felt the influence of the occasion. The committee room being crowded, those who could not find seats contented themselves with hobnobbing in the lobby, feeling confident that they would learn all about what was being said by the speakers, in the NORTHWESTERN MILLER.

The Geo. T. Smith band is an organization of which any city might well be proud. They certainly added very much to the enjoyment of the excursion. During the day they were constantly on duty and rendered their selections in such a delightful manner that it set a number of even the grave and reverend millers to dancing. During the banquet they played to even more advantage and discoursed sweet music to an audience which appreciatively applauded them.

The Hibbard house receives so many millers, mill furnishers and others connected with the industry during the year that Clark, the proprietor, is pretty well posted on the trade and feels a bit dusty himself.

If Geo. T. Smith didn't wake up Friday morning with a paralyzed right arm, he has reason to congratulate himself, for from the time the millers arrived until midnight, when Mr. Seybt called for and received three rousing cheers for him, he was the object of continual congratulations on the success of the excursion and of repeated thanks from everybody. The Smith Purifier Co. knows how to entertain and no one who went with the millers to Jackson will deny it. The entire town was at the service of the visitors. The fire department was called out for them and the freedom of the city was theirs in the fullest sense. No one could have done more than Mr. Smith did to help his guests have a good time and it was decided unanimously that he succeeded.

Mr. McCann, the Nashville miller, was a prime favorite with everybody. His lively conversational powers attracted people to him and his high spirits were infectious.

At a mock court in the Hibbard house, the newly elected president, John Crosby, acted as judge, and gave decisions which covered plaintiff, defendant and attorneys with confusion.

John D. Nolan came to the front as official stenographer. Mr. Nolan is a stenographer from Shorthandville, and discharged his duties with a great deal of credit.

W. P. Northway was in Chicago, and followed the procession to Jackson. He was at all times within sound of the drum. He astonished his friends by donning a pair of huge blue glasses, and was twice pointed out to the awe-stricken crowd as Herr Most.

E. A. Turner, of the Link-Belt Machinery Co., placed a Cockrell scouring case in the rotunda of the hotel, which was examined carefully by a large crowd of curious millers. Mr. Turner's gratification at the interest shown by the millers was considerably dampened upon discovering that some wicked person had removed the original label on the case and substituted the following: "Turner's Anti-Socialistic, Bomb Proof Chest Protector. Warranted."

Joseph Karns represented the Noye company at the convention and wore his ante-bellum, black stovepipe hat. The hat was purchased at the time Clay was running for the presidency. Mr. Karns vowed that he would never buy another hat until Clay was elected, and it is therefore probable that his present head covering will last a lifetime.

Henry Stanley, of St. Louis, seemed to enjoy himself both at Chicago and Jackson in a quiet easygoing way.

Simeon Howes, of Howes & Ewell, was present at Chicago and passed his time in greeting old friends among the millers.

Comparatively few witnessed the trial of the diamond worn by a certain gentleman from Illinois, but those who did so pronounced it a perfect success. The lights were entirely put out in the committee rooms and the gentleman entered. Immediately the room was flooded with a brilliancy so intense that it was possible to hear a pin drop.

Homer Baldwin, of Youngstown, O., was generally surrounded by a crowd of old friends, from the center of which his smiling countenance, fringed by his white beard, shone forth cheerfully.

R. L. Downton, it is rumored, went before the secret session of the roller mill manufacturers and made them a proposition to the effect that he would put the amount of his claims in a jack pot, each manufacturer to contribute an equal sum, he to be given a single pair to open the pot with, and if he didn't fill in the draw, then to renounce all claims for royalty. We can not explain the terms of the proposition further, but simply quote the words of our informant, who was present at the meeting and who occupies such an exalted position in the Y. M. C. A. that his words carry great weight.

John Milne, head miller of Plant's A mill, St. Louis, attended the convention and went on to Jackson with the procession.

John Crangle, president of the Anchor Milling Co., St. Louis, arrived somewhat later than the rest of the St. Louis delegation, but so impressed the room clerk of the Grand Pacific by his elegant gold headed cane and still more imposing expanse of fancy patent shirt front, that he was at once assigned to one of the best rooms in the house, in advance of a dozen others who registered ahead of him. He evidently impressed Mr. Downton's attorneys also, for the case against him is said to have been settled amicably before he left for Jackson.

Mr. Wilson, of the Great Western Mfg. Co., Leavenworth, met a number of friends at the convention and seemed to enjoy the reunion greatly.

Everybody was genuinely glad to meet Wm. McLean; probably no one there had a wider acquaintance among the millers.

Gov. Stanard, of St. Louis, had intended being present at the convention, but was called to Washington suddenly and therefore did not appear.

The convention was pronounced by all present the best and most satisfactory evet held.

Great regret was universally expressed that Mr. Christian could not be present. He was greatly missed.

Messrs. Seybt and Seamans labored long and arduously, and the convention seemed to appreciate their work and value it at its worth.

Mr. Plant, of St. Louis, was present in Chicago, but did not go to Jackson.

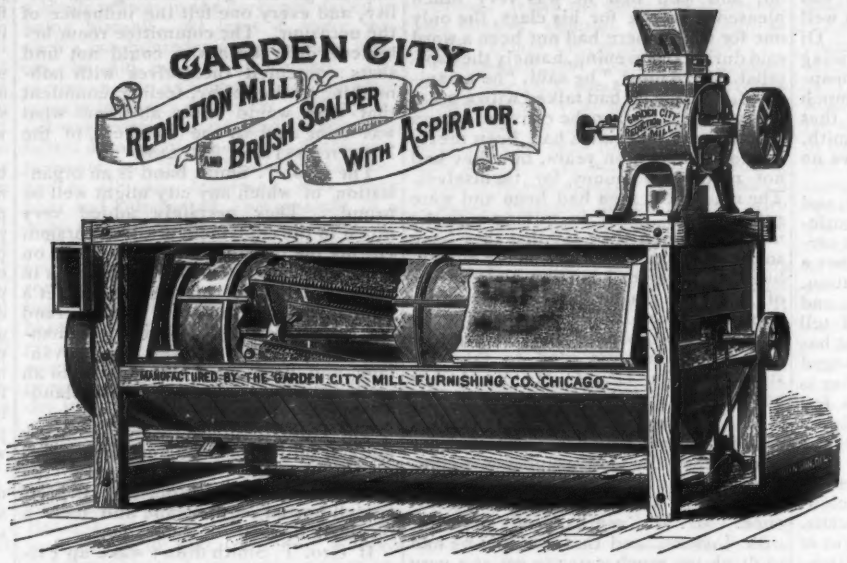
It is rumored that the mill furnishers will engage Col. Rodney Mason to act as their attorney in defending the Downton suits. They could not have a better man.

The Cyclone dust collector attracted almost as much attention at Jackson as the banquet itself. Almost every miller in the party visited the works of the Knickerbocker Co., at sometime during the day and saw it in operation. After the visit of inspection it was very amusing to hear the miller who had seen it, trying to tell the one who had not just how it worked. The very simplicity of the Cyclone makes it difficult to explain and the conference generally ended by the demonstrator saying to his audience "O, come down and see it work for yourself," and the audience generally accepted the invitation.

DON'T BE BLIND TO YOUR OWN INTERESTS!

And Don't Be Unnecessarily Prejudiced.

Our System Will Suit Your Mill.



HEAR WHAT WE HAVE TO SAY.

There is not a mill running to-day but its product could be improved by the use of our BREAK AND BRUSH SCALPER, This is a strong and sweeping assertion, but we mean just what we say, and can give you the most indisputable evidence that we can do it.

Our BREAKS and BRUSH SCALPERS are now in successful operation in a large number of Roller Mills. These mills range from the most elaborate to those using short systems with combined machines. They are running in connection with all the different systems or plans as advocated by the leading mill builders and remodelers. Our GARDEN CITY BREAK and BRUSH SCALPER we positively state has made considerable improvement IN ALL OF THESE MILLS—an improvement so marked as to call forth the most unqualified praise from the millers operating them.

WHAT WE HAVE DONE FOR OTHERS WE CAN DO FOR YOU, and we again positively assert, that let the product of your mill be ever so good, our System and Machines will make a sufficient improvement to well repay you for the outlay. We have got our Machines down fine, to carry out this system of Splitting and Cleaning the Split Wheat, and we have proved their efficiency on every known variety of Wheat used for Milling.

A well known Milling Engineer and Expert states that "the time will surely come when it will be considered as necessary to brush and scour the wheat, after being split by a First Break Machine, as it is now considered necessary to clean the whole wheat after being received at the mill."

If the owners of Full Roller Mills fully understood the merits of our Machines and System they would not run a day without them. Rolls cannot make a perfect FIRST BREAK. Corrugate as you please (one, two, three or more corrugations to the inch), and one roll smooth, the results are the same—all mere chance work—and no one knows this better than those who are running them.

OUR BREAK MACHINE can do better work on first break than any Roll ever thought of doing, and we can demonstrate this to the satisfaction of any one interested, for MONEY or GLORY.

Recollect that we stand alone with our System and the machines to carry it out; no opposition whatever--in fact, opposition means infringement of our Patents.

BE WISE IN YOUR GENERATION, and put little faith in the one-sided arguments of agents who cry down every machine in their struggle for a commission. You never heard a miller that has seen our BREAK and BRUSH SCALPER in operation, but speaks in high terms of them. What better testimony could be offered as to their merits? A TRIAL OF OUR MACHINES WILL CONVINCE.

BUHR MILLERS.

What you particularly need, is closer attention to your CLEANING MACHINERY. With perfectly cleaned wheat, you can turn out a grade of flour always salable, as well as profitable. But if you want clear flour, our BREAK MACHINE and BRUSH SCALPER are a NECESSITY, as without the splitting and cleaning operation you cannot get rid of the dark crease dirt, and that once incorporated with the flour, lowers the grade, and there is no help.

Machines Sent on Trial and Satisfaction Guaranteed. Write for New Descriptive Pamphlet, Giving Full Information.

GARDEN CITY MILL FURNISHING CO., CHICAGO, ILL.

THOS. PEARSON & CO., Dublin, Ireland, Sole Agents for Great Britain and France. BRYAN CORCORAN, 31 Mark Lane, London, England.

MILLS OF ANY CAPACITY

A TIGER HUNT AND ITS RESULT.

BUILT AND EQUIPPED ON THE

Celebrated Case System

ARE SUPERIOR TO ALL OTHERS.

Why Pay the Same Money for Inferior Machines?

OUR MILLS ARE AUTOMATIC FROM BASEMENT TO ATTIC.

It will Pay You to Investigate our Short Roller Corn Meal System.

In remodeling mills we frequently displace Rolls and Purifiers of other makes, which we can sell cheap. We have on hand the following line of

SECOND-HAND MACHINERY:

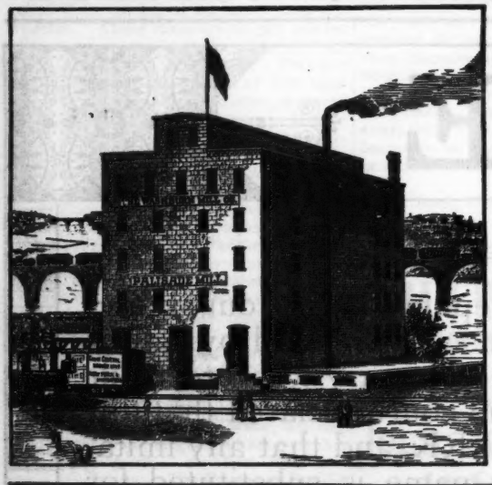
One 9x12 4-roll Allis Mill, Porcelain Rolls, in good condition, price	$175.00
One 9x24 4-roll Odell Mill, nearly new	200.00
One 12x18 2-roll Nordyke & Marmon Mill, with Case Automatic Feed	75.00
One 9x18 2-roll Downton Mill	75.00
One 9x30 2-roll Jno. T. Noye Mill, with "Improved Noiseless Gear" and "Stevens Rounded Corrugations," all in first-class condition, about as good as new, a full line of Breaks for a 200 Bbl Noye Mill, each	125.00
One No. 3 Geo. T. Smith Purifier, good as new	$125.00
Two 9x24 4-roll Noye Mills, with Case Automatic Feed, Rolls about as good as new, each	250.00
One 16-inch Currier Portable Middlings Mill	40.00
One 9x18 4-roll Allis Mill, with Case Automatic Feed, Rolls as good as new	200.00

The Rolls in above made Smooth or Corrugated, as desired, and the Mills guaranteed superior to new of the same make, owing to our Automatic Feed Attachments. Those not marked as having our Feed will be supplied with it at a small advance in cost.

Write for estimates on Full Roller Flour or Corn Meal Plants. State the Capacity Desired.
Samples of Pearl Meal, etc., mailed free on application.

CASE MANUFACTURING CO., COLUMBUS, O.

Permanent Exhibition of the Case Machinery at our Minneapolis Office, Corn Exchange, opp. Chamber of Commerce. LOUIS B. FIECHTER, Agent.



W. D. WASHBURN, President. J. E. STEVENS, JR., Manager. W. D. HALE, Treasurer.

THE

WASHBURN MILL CO.

MINNEAPOLIS, MINNESOTA, U. S. A.

PROPRIETOR OF THE

PALISADE AND LINCOLN MILLS,

Daily Capacity, 2,500 Barrels.

BRANDS

Washburn's Best, AAAA, Royal Rose, Balmoral, Lincoln, Nonpareil, Fifth Avenue, Magnolia, Saratoga, Palisade, Beacon Street, Liberty Bell, Hawthorn, Sterling, Lyndale.

MARK YOU THIS!

WE HAVE ONLY SOLID FACTS TO PRESENT AS PROOF OF THE SUPERIORITY OF THE

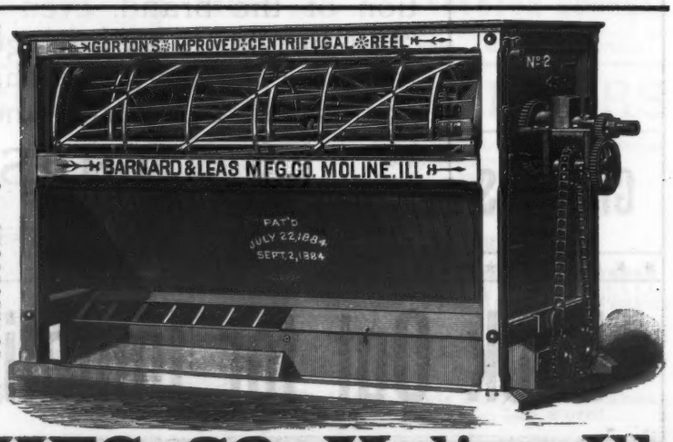
NEW GORTON CENTRIFUGAL REEL

Over anything in the line of Flour Dressing Machines ever invented. The miller who wrote this knew what he was talking about:

BARNARD & LEAS MFG. CO. Office of D. B. SEARS' SONS, Island Mills, Milan, Ill., August 12, 1885.

We have been running two No. 2 and two No. 3 Gorton Centrifugal Reels. On these four machines we are bolting 85 per cent of the flour that we are making in our 300 barrel mill—the first two handling our break flour and the last our patent flour. We have been driving the two No. 2 machines with feed on, with a two inch belt; one machine being driven from the other. The above reels took the place of eight 20 feet by 32 inch ordinary reels, and are doing the same work in a very satisfactory manner; making a clear strong flour, much better than that made on the old reels. The separations made are a surprise to every practical miller who has examined their work. We were very careful to ascertain the merits of the different makes of reels before purchasing these, and now, after over two months of constant use, we are satisfied that we have the best machines for the purpose that have yet come to our notice. The slow motion does not beat up the fluffy material and drive it through the cloth, nor cause so much wear on the cloths as a consequence, and owing to the simple and effective system devised by our Mr. Van Horn, our flour is whiter and cleaner than that made on other machines and systems.

D. B. SEARS' SONS.



The Gorton is the Slowest Running Reel in use, and it bolts over the entire surface of the cloth, thereby saving power, producing better flour and with less wear on the cloth. Dispense at once with the old fashioned bolting reels, and use a machine which is more economical and in every way better adapted to your work.

☞Write at once for new illustrated catalogue and prices, to the

BARNARD & LEAS MFG. CO., Moline, Ill.

THE CHASE SCOURING CASE

FOR ALL KINDS OF SMUT MACHINES.

The Chase Scouring Case

• CLEANS •

THE

SIDES AND ENDS

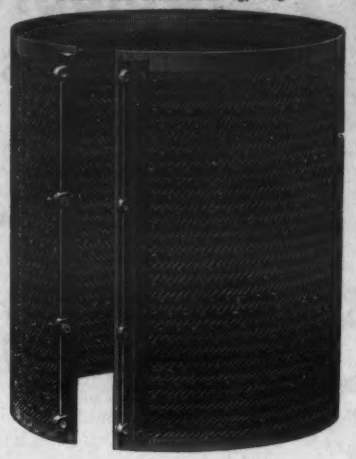
OF THE

BERRY PERFECTLY

* * *

Without Breaking the Wheat.

PATENTED NOVEMBER 13, 1883.



MANUFACTURED BY

The Richmond M'f'g Co.

LOCKPORT, N. Y.

IT CAN BE USED

ON ANY KIND OF

• SCOURERS •

Brush or Smut Machines,

AND IS NOW IN USE ON A

LARGE NUMBER

OF

MACHINES OF DIFFERENT MAKES.

SEND FOR DESCRIPTIVE CIRCULAR AND PRICE LIST. MANUFACTURED ONLY BY THE

Richmond Mfg. Co., Lockport, N. Y.

C. M. GILBERT, General Agent, Box 353, Minneapolis, Minn.

NOTICE

FLOUR

DEALERS

AND

GROCERS

IN consequence of the world wide reputation of our brand "PILLSBURY'S BEST," it has been so extensively imitated by millers and flour dealers that we have found it necessary to protect our business by legal proceedings, in which the court declared that this brand constitutes a VALID TRADE MARK, and that any imitation of the brand, even though another name is substituted for "Pillsbury's," is an infringement. In justice to ourselves, as well as to our customers, we shall be compelled to protect the public against all such infringements in the future.

CHAS. A. PILLSBURY & CO.,

MINNEAPOLIS, MINN.

Look Out for Imitations and Infringements

A COMING REVOLUTION.

CHANGING CONDITIONS IN THE FAR NORTHWEST.

The proposed early completion of the Northern Pacific across the Cascade mountains to Puget Sound, invests the question of future shipments of wheat and flour from this region with peculiar interest. At present Portland is the only port of shipment, either foreign or to San Francisco, owing to the geographical position she occupies, but with a road direct from the grain fields of the interior to Puget sound, she can no longer hope to monopolize that industry. The Northern Pacific does not now reach this city over its own line, but from Wallula, a point on the Columbia river in eastern Washington a few miles south of Snake river, it runs on the line of the Oregon Railway & Navigation Co., an entirely distinct, and now to a degree rival, organization. It is not the Northern Pacific, but the latter company, which now handles the grain crop of the Walla Walla and adjacent regions. Not until the Northern Pacific has an independent line to tidewater, which it will secure when the Cascades branch is completed, will it be in a position to bid for the grain trade, and as soon as it does this it will come in direct and vigorous competition with the O. R. & N. Co. The latter now has lines ramifying the grain country both north and south of Snake river, and has boats on that stream which bring grain down to the station at Riparia. Walla Walla, Dayton, Pomeroy, Colfax, Moscow, Pendleton, and nearly all the towns of consequence in the wheat country lie along some branch of the O. R. & N. Co. On the contrary, Sprague, Cheney, and Spokane Falls, the only points of note on the Northern Pacific, lie to one side of the best farming country. This situation has left the O. R. & N. Co. master of the field, to dictate rates on every bushel of grain and barrel of flour moved to Portland from the interior. These rates are $6 per ton for all points south of Snake river and $8 for those north of the stream. This is a tax of 18c per bu for a haul of less than 400 miles, a rate which eastern shippers would consider prohibitory. Under these conditions the average price realized by Walla Walla farmers the past two years has been 40c, and nothing but the fact that their crops have yielded them from 25 to 30 bu to the acre has enabled them to keep their heads above water. The Northern Pacific has been taking wheat from the three points mentioned on its line to Minneapolis and Duluth for $8 per ton, and as the price of grain at those points is higher than here, farmers along the line of that road have this season realized about 10c per bu more than those on the O. R. & N. The latter, by charging prohibitory rates for short hauls from points on its line to points on the Northern Pacific, has denied farmers in the great wheat belt this advance in prices. Another year will see a revolution. The Northern Pacific will have a line across the mountains before the summer of 1887 closes. It is already constructing a feeder from a point near Spokane into the rich Palouse region, and is about to establish a line of boats on Snake river to connect at Ainsworth, and a branch will undoubtedly be built from the same point to Walla Walla and Dayton. It will thus have pierced in several places the very heart of the O. R. & N. Co.'s territory, and a marked reduction in rates is a foregone conclusion. Other branches are talked of, but these are the only ones giving promise of early construction. All of the grain thus handled by the Northern Pacific will, perforce, be taken to Puget sound for shipment, including large quantities of flour. The grain thus taken from the O. R. & N. Co.'s territory, and from the Yakima and Kittitas regions, will probably amount to 200,000 tons the first season, and increase largely every year. So far this season Portland has received 214,000 tons of wheat and 116,000 bbls of flour from that region, with three more months of shipment to hear from. What quantity has been sent east by the Northern Pacific I can not say. At the rate of increase in that region the Northern Pacific can take 200,000 tons out of the crop of 1887, and not diminish the quantity coming to this city a single pound. The natural conclusion of one who considers well the situation, is that after another year Portland and Puget sound ports will ship about equal quantities of the grain and flour of the interior region, while the additional 75,000 tons of wheat and 200,000 bbls of flour produced in the Willamette valley will continue to find a market from this city. All talk of Portland being superseded entirely is the merest bosh, especially when founded on the supposed dangers of the Columbia river bar. The grain fleet has met with no disasters at the mouth of the Columbia. There is a little more expense attached to reaching Portland than the Puget sound ports, but as the situation demands that vessels come here, this additional expense is not sufficient to keep them away, or cut any considerable figure either way. Just what point on Puget sound will be the grain and flour market which will spring up can not now be definitely stated. Tacoma is the official terminus of the Northern Pacific, and C. B. Wright and other influential officials of the road have large property interests there. They have always pulled hard, and will doubtless continue to do so, for Tacoma; but in spite of this advantage Seattle has gallantly maintained her position as the leading city on the sound. She has a better harbor, is farther down the sound, has more capital and more enterprising business men. She has a road partly built, which will connect with the Cascades branch at a point which will make the distance to Seattle from eastern Washington but a few miles longer than to Tacoma, and the rates will undoubtedly be the same. Unquestionably both cities will be grain ports, but he who reads the future by the past, who sees that Seattle has progressed farther by her own exertions than Tacoma has with all the railroad boosting, will look to Seattle to outstrip her rival in handling the grain and flour of eastern Washington, as she has in everything else. In any event there is bound to be a grand shaking up and a new deal all around.

WILLAMETTE.

Portland, Ore., May 7.

LA CROSSE

ROLLER MILLS

FOR ALL PURPOSES.

Write for Catalogue to

John James & Co.,

La Crosse, Wis.

MORRISON'S IMPROVED PATENT

Self-Lubricating Packing.

A wonderful test of Robert Morrison's Patent Self-Lubricating Packing was made by Engineer Ben. Smith (Uncle Ben.) of locomotive No. 12, accommodation, on the St. Louis and San Francisco railroad. More than twenty days ago he packed with the Morrison fiber, and has run over 3340 miles without change, and says the packing is as good as ever, so far as effect upon its use is observed. No BURNING or SCORING, and rods kept in best order. It applies to STEAM ENGINES of all kinds, or COLD WATER PUMPING ENGINES as well. Can the above test be equaled by any other preparation in the market?

St. Louis, Mo., March 22, 1884.

Manufactured by A. Leschen & Sons' Rope Co., St. Louis, Mo. For sale by Robinson & Cary, St. Paul, Minn.

THE New French Middlings Purifier

Is the only PURIFIER using the UNDER BLAST for purifying, enabling FINE MIDDLINGS to be cleaned without WASTE. It has the only perfect BALANCED MOTION—requiring LITTLE POWER, and running STILL and without JAR. It has the only perfect CHAIN CLOTH CLEANER—requires no HAND BRUSHING. New SHAKING CONVEYOR makes perfect SEPARATIONS. Has GREATEST CAPACITY, and does Best Work.

FOR LOWEST PRICES AND CATALOGUES, ADDRESS

THE ROLLINS MIDDLINGS PURIFIER CO., MINNEAPOLIS, MINN.

Sacking, Baling Twine, Pitch, Tar, Bagging, Needles, Oars,

Chain, Anchors, Cordage, Twines, Stave and Lathyarns, Heading Bands,

F. L. THORPE, Traveling Salesman.

Geo. B. Carpenter & Co.

DEALERS IN

GENERAL MILL SUPPLIES

COPYRIGHT 1884

BELTING, OIL & LATHYARNS,

TWINES, CORDAGE & WIRE ROPE,

COPYRIGHT 1884

202-208 S. WATER ST. CHICAGO.

Beltings, Belt Hooks, Belt Studs, Rubber Clothing, Oiled Clothing,

Horse Covers, Oils, Cylinder Tallow, Packing, Cotton Waste, Asbestos Packing,

NEW THING—Stave Bolt Rules.

Branded Figures, 1½ Square, 6 ft. Long.

GRAND RAPIDS STAVE COMPANY,

GEO. B. CARPENTER & Co. Grand Rapids, Mich., December 23, 1884.

Gentlemen: We are all very much pleased with the new Rule for measuring bolts, purchased of you, and should dislike to get along without it. No stave factory is complete without one.

Truly yours, JAMES A. HUNT, Treas.

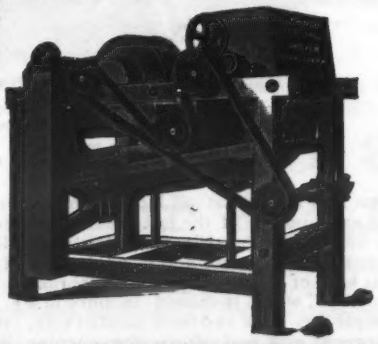
AS WE OWN ALL THE PATENTS Controlling a SEAMLESS STEEL ELEVATOR BUCKET,

WE RESPECTFULLY ASK THE TRADE TO BUY ONLY THE

AVERY PATENTED SEAMLESS ELEVATOR BUCKET.

Avery Elevator Bucket Co., Office Leonard and Winter Sts. Cleveland, Ohio.

BUCKWHEAT MILLERS



Will find it to their decided advantage to investigate the conceded merits of

CRANSON'S

SILVER CREEK

ROLLER BUCKWHEAT SHUCKER.

Its success is beyond question. Its value has been demonstrated in more than 800 cases.

It is the only Perfect Buckwheat Shucker in the world.

CRANSON, HUNTLEY & CO., Sole Proprietors, SILVER CREEK, N.Y.

ONE OF THE FINEST.

For a long term of years the Richmond City Mill Works, of Richmond, Ind., has been known as one of the leading and most reliable mill building houses in the country, its business being conducted with the energy and conservatism characteristic of the active, shrewd and practical men at the head of the house. The full measure of success and confidence attained in other lines has induced the concern to put out, after careful experimenting and the perfection of details, a new and greatly improved roller mill, which seems to be so complete and praiseworthy as to deserve special attention as well as to guarantee its popularity among millers. It is the work of J. D. Mawhood, an expert of extended experience in the building and operation of mills, and one of the oldest and most trusted men in the employ of the Richmond City Mill Works. The new Mawhood roller mill, which is illustrated herewith, is thus described by its makers:

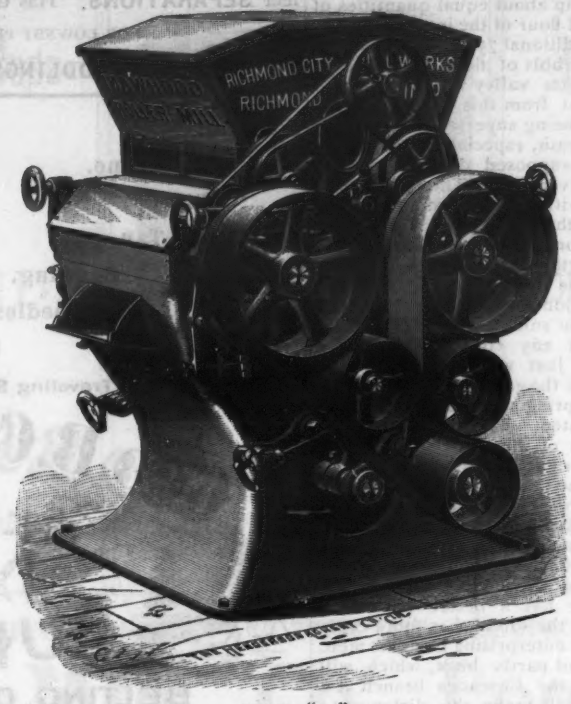
(1.) It has a solid iron box frame of new and artistic design, is perfectly durable and very rigid. This insures perfect alignment of stationary rolls and a greater degree of rigidity and perfection of adjustment in the swinging roll.

(2) The swinging roll arms, leveling device, adjusting tie rod, spreading apparatus and tension springs, are all constructed on new, novel and mechanical principles; the swinging arm being mounted so as to maintain a swiveling movement in any required direction, at the same time the roll being held toward its mate in grinding relation with the greatest accuracy and rigidity. The leveling device is perfect and positive, being raised and lowered in a vertical position, and is not open to the objections of the eccentrics used in other mills for this purpose. The adjusting tie rod for securing and adjusting the swinging roll arm is novel in its combinations. The rolls are adjusted by simply turning the hand wheel, and, when properly set, need no set screws or clamps to keep them in position, but are firmly and securely held in position until changed by the operator. The spreading device, by one action of the lever, separates both pairs of rolls in a double machine and stops the feed mechanism. The reverse action is made with the same facility and ease. The tension springs are perfect in their action. They hold the swinging roll away from its mate, so as to prevent striking or abrasion of the roll surface should the material to be ground cease to flow between the rolls while in grinding position, and at the same time the full force of the spring is applied to hold the rolls in grinding relation, only yielding when any hard substance, such as nails, screws or flights, passes between them, thus preventing the breakage of any of its parts.

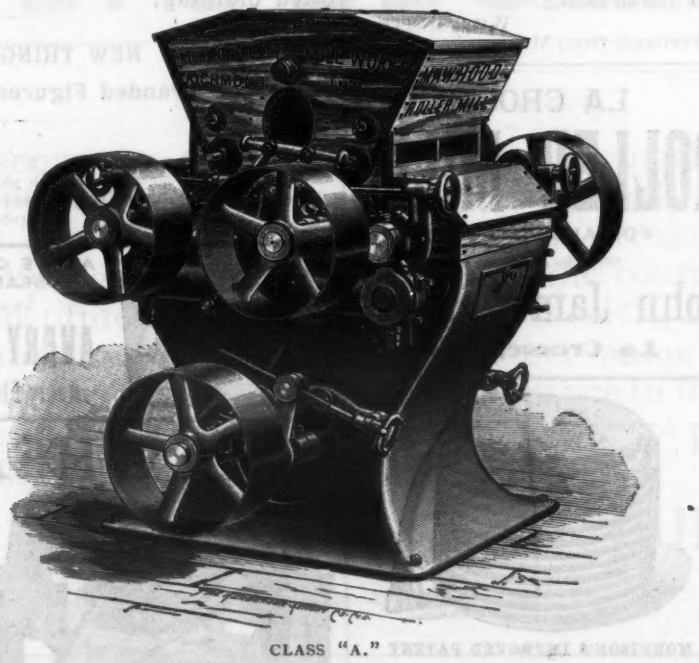
(3) The novel, silent, and efficient belt movement. The main driving belt from the power shaft passes over the two pulleys on fast rolls, and is drawn down between them by the main tightening pulley, which serves to give the belt ample contact on the roll pulleys, and at the same time, by the adjusting device, serves to tighten the belt at the will of the operator. The shaft of this tightener is mounted in swinging boxes, and passes through a tunnel in the bed frame. On the end of this shaft is a pulley which engages with the belt that holds back or retards the motion of each of the two slow rolls. This belt passes around the pulleys on slow rolls, thence around the idler and tightener pulleys, and by means of the tightener, the tension of the belt can be maintained without conflicting with the main belt tightener. The arrangement of belt and tighteners is such that the belt movement of the machine is under complete control of the operator, so that proper differential can be maintained at all times without the annoyance of having to stop the whole mill in order to adjust a few small belts, as is the case with a good many other mills. The belt movement of this mill, while perfectly simple, is acknowledged to be the best yet devised.

(4.) The feed mechanism of the mill is one of the leading and distinguishing features of this new machine. A poor feed is one of the most annoying things connected with a roller mill. It takes more time in watching and gives more anxiety and trouble than any other one thing connected with roller mills. Of the various kinds of feeders in use, some are very good on certain kinds of materials, while on other kinds they are practically useless. The "roll feed" is preferred by most manufacturers and millers, but, as ordinarily made, has its objections, as it fails to do its work properly on certain kinds of stock. In the Mawhood feeder, the roll feed is adopted on account of its convenient and silent drive. This is combined with a new mechanism, consisting of a self adjusting or automatic gate, which insures an even feed on almost all kinds of material except a few of the last breaks, and on fine middlings, sizings and low grade material. To insure a uniform feed on this kind of stock, there is a metal rake provided, which is caused to move in a simple way back and forth parallel with, between, and just above the opening between the feed roll and the automatic feed gate, which operation serves to distribute the material the entire length of the feed roll, and also causes it to pass through in an even, uniform sheet, thus making perfect work on all kinds of material.

Many additional points of superiority might be mentioned. The rolls are of the best Ansonia make. The corrugations are shaped with special reference to a non-cutting action, and at the same time produce a larger per cent of middlings from a given amount of wheat than can be produced by any other form of corrugation heretofore used. The frame of the mill is so constructed as to prevent the lodgment and accumulation of dust and dirt, the leakage of dust from within, and many other desirable features not necessary to mention. Class A mills are 9x24 and 9x18 in. Class B includes 9x14, 9x11 and 9x8 in mills. Catalogues, prices and full particulars will be furnished by the Richmond City Mill Works, Richmond, Ind.



CLASS "A."



CLASS "A."

W. W. Hunter, retiring member of the late firm of Hunter Bros., St. Louis, has concentrated all his interests in Chicago, in his own name, with offices at 218 La Salle street.

THE LEGAL GRIST.

WHAT THE COURTS ARE DECIDING IN BUSINESS CASES.

According to the decision of the supreme court of Indiana, one partner cannot in the absence of express authority bind the firm or his partner by a note executed by him in the firm name in a transaction wholly outside the apparent and actual scope of the partnership business.

A curious larceny case was lately before a high English court. It appeared that the defendant asked a person for the loan of a shilling. The person gave him what he supposed to be a shilling, but which in fact was a sovereign. He changed the sovereign, kept the change, and when told of the mistake at first denied the receipt of the sovereign, but admitted that he had got it and had spent half the money. The court held that defendant was guilty of the crime of larceny.

The words "anti-washboard," as applied to a manufacture of soap, were recently held to constitute a valid trademark by the United States Circuit court for the eastern district of Michigan. The court said: "As a general rule there is no doubt that in order that mere words may be upheld as a trademark they must be purely arbitrary or must indicate the origin or ownership of the article or fabric to which they are affixed. Words expressive of the character and composition of an article, or of the name by which it is generally known in the market, cannot be made the subject of monopoly. * * * There is, however, a class of words which, though not descriptive of an article, are suggestive of some supposed advantage to be derived from using it, or some effect produced by its use. These have been ordinary though not always upheld as valid trade-marks. * * * The words 'anti-washboard' are not objectionable as indicating the composition or quality of the article, although the natural inference from them is that by the use of the soap the necessity of rubbing clothes is obviated. Upon the whole we incline to the opinion that they are rather suggestive than descriptive, and that they may be properly claimed as a trade-mark."

A bill of lading contained a stipulation to the effect that the amount stated in the bill should be conclusive as between the shippers and carriers. The United States Circuit court for the eastern district of Michigan held that such a stipulation was not obligatory upon the vessel though it might be upon the master signing it personally. The court said: This is certainly a very singular stipulation, and was designed undoubtedly to obviate the difficulties which are thrown in the way of deducting shortage, but we think the answer to it is not a difficult one. It is well settled in the case of Grant vs. Norway, 10 C. B. 665, in England, and the Freeman, 18 How. 182, in this country, that the master has no authority to sign a bill of lading for a cargo not laden on board. Now this is nothing more nor less than such a contract. It is an agreement that the amount named in the bill of lading shall be conclusive upon the vessel, though never a bushel may have been laden on board. The master has no authority to make a stipulation of this kind. It is possible that it would be binding between the consignor and the owner of the vessel if he assented to it personally, but the power of the master to bind his ship is limited to contracts made in the usual and ordinary course of business. * * * His authority is to sign bills of lading of the usual tenor and description, consisting of a receipt for the amount shipped, subject to explanation, and a contract to deliver in the usual form at the port of destination. Such a contract the master has undoubtedly the right to sign, but he has no right to sign such contract before the cargo is laden on board.

HIGHEST AWARDS | INTERNATIONAL EXHIBITIONS.

PARIS, 1885. KOENIGSBURG, 1885. ANTWERP, 1885.

THE LATEST IMPROVED

Prinz Patent Dust Collector

OVER

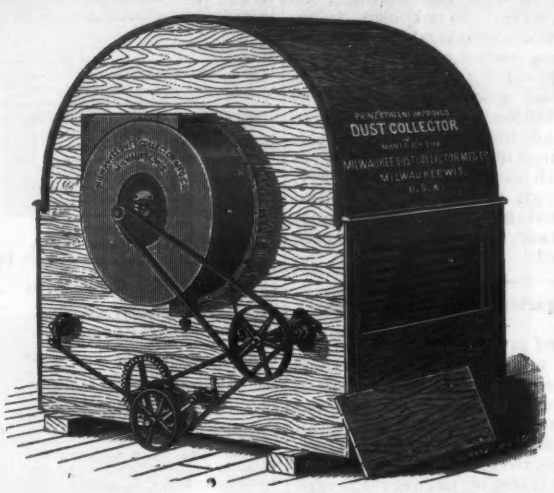
5,000

MACHINES IN SUCCESSFUL OPERATION.

HAS SUCCESSFULLY STOOD A TEST OF OVER

FOUR YEARS.

Improves the Working of all Dust Producing Machinery.



THE

ONLY PERFECT MACHINE

FOR

VENTILATING PURIFIERS, ROLLER MILLS, MILLSTONES AND Grain Cleaners.

FULLY ∴ GUARANTEED!

FIVE SIZES

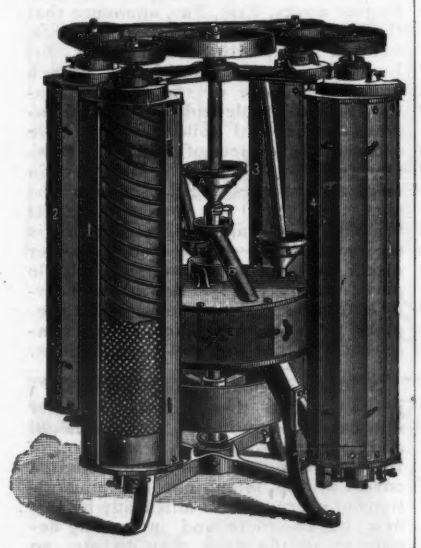
Manufactured, With or Without Fans.

READ! READ!

THE COURT has established our sole right to manufacture and sell Dust Collectors as heretofore, and has enjoined the Geo. T. Smith Middlings Purifier Co. and others from doing so, permanently. Any one in doubt, we respectfully refer to the parties enjoined. Address for prices and "Treatise on Dust Collection,"

MILWAUKEE DUST COLLECTOR MFG. CO., MILWAUKEE, WIS.

AN UNPARALLELED OFFER



THE SMALL MILLER

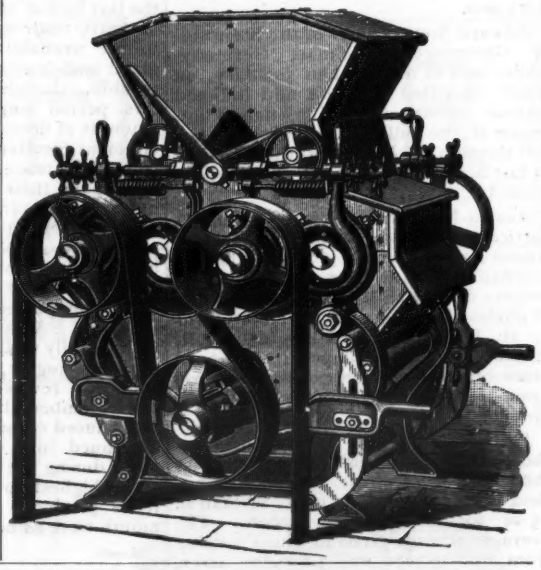
Can Compete

WITH HIS

RICH NEIGHBOR

BY ADOPTING THE

OBENCHAIN SYSTEM



We are now prepared to furnish a full line of machinery for a Complete Roller Mill with a capacity of from 30 to 40 Bbls per day, making ten reductions (five on wheat and five on middlings), guaranteeing as good work both in yield and quality as any 100 bbl mill in the country,

For the Nominal Sum of $2,500!!

We will furnish the same for a 50 to 60 bbl mill, guaranteeing same results and making twelve reductions, **For $3,100!!**

Allowances will be made from above prices for any machinery in old mill which we can use in remodeling. Correspondence solicited from parties who mean business. Satisfaction guaranteed in every instance. Abundant references given as to the character of work already done by us, by parties now using our full roller system. Mills, material and workmanship first-class, and second to none.

KNOWLTON & DOLAN, LOGANSPORT, IND., MANUFACTURERS OF **OBENCHAIN'S FULL LINE OF MILL MACHINERY.**

Foreign Notes

A. Millot, mill builder, of Zurich and Munich, has established a branch at Befançon, France.

Head Miller Klancken's house at Linden, Darmstadt, took fire April 5, and his little son was fatally burned.

Miller Kopf, Leidringen, Germany, suffered $2,400 loss to his mill and machinery by fire, April 7. Cause unknown.

Heinrich Remiers, employed in a rice mill at Hamburg, received serious internal injuries April 14, from the fall of a pile of heavy sacks.

By this it will be seen that the only gain in the present year over the last has been from the Pacific ports of the United States and from Australia.

The Bermudians are a thrifty people. They import potatoes from the United States at $2 per barrel and sell us their own tubers at from $15 to $20 per barrel.

Fire lately destroyed the mill, dwelling and other buildings belonging to Bernhard Rothfuss, Gompelscheuer, Wurtemberg, with loss of $3,120 and some insurance.

Applications for German patents: Toothed working surface on roller mills, L. Warmbold, Quedlinburg; process of cleaning sieves in bolts, Jabez W. Crosby, Leeds, York, England.

A stroke of lightning killed a miller in the wind mill at Tschopik, near Glogau, Silesia, April 19, and stunned another workman. The sails and moving gear of the mill were shattered but not ignited.

F. Becke, Sickte, Brunswick, Germany, who has carried on a milling business there 40 years, has transferred the same to his son, Wilhelm Becker, in whose name it will be conducted in future.

A company has been formed in London, with $500,000 capital, under the title "Galician Milling and Industrial Co. (limited)," to develop and operate the Royal mill, a flour and barley manufacturing establishment in Krakau, Mecklenburg. The purchase price was $275,000.

Edward Stein, owner of the Stein mill in Gerstungen, Weimar, Germany, while in a fit of drunken jealousy, on April 10, killed his wife and inflicted serious injuries upon Christian Vogt, lessee of the mill. He then shot himself through the head, and though alive at last accounts, his recovery is not expected.

Austro-Hungarian patents: Grain decorticator and barley rolling machine, Anton Besser, Vienna; automatic feed mechanism for milling and other machinery dealing with pulverized material, Wilhelm Henneberg, Gotha; bolt, Henry H. Doubleday, Washington; bolt, Adolf Fischer, Budapest; improved grain brush, G. Heister, Laland; novel grain cleaning machine, M. Wirth, Neuhof.

E. H. Walker, the ex-statistician of the New York produce exchange, says the decrease of wheat seeding in England is not over 10 per cent, instead of 25 or 30, as has been stated. The average acreage given to wheat raising from 1867 to 1870 was 3,836,890 acres, but there has been a gradual falling off every year since then, and last year only 2,553,092 acres were apportioned to wheat.

The mill owners of Nauen, Kremmen, Oranienburg, Grausee, Zehdenik, Friesack and adjoining country, in Brandenburg, Germany, have formed a windmill insurance company, for protection against fire and damage by storms. Similar organizations are working successfully in Glogau, Bitterfeld, Hanover and Unruhstadt. At the general meeting of the new company, held March 15, 140 windmill owners were present, of whom 120 subscribed to the statutes. Up to April 7, 80 had taken out policies.

England's flour imports for the first quarter of 1886, as compared with the same time in 1885, were:

	1886, cwts.	1885, cwts.
N. America, Atlantic ports	1,768,631	3,247,491
N. America, Pacific ports	353,047	243,760
Austro-Hungary	412,030	576,501
Germany	171,016	339,093
Australia	41,480	22,265
France	46,646	62,289
Denmark	15,692	31,237
Others	25,712	35,829
	2,834,554	4,555,375

Switzerland has about 3,200 mills, mostly using water power, in which the country is rich. Of this number, 800 are custom mills. As is known, Switzerland produces considerable grain, her imports being only 1,000,000 qrs over her own crop of 2,500,000 qrs. Swiss mills turn out 3,000,000 qrs of flour yearly in addition to 1,250,000 qrs in feedstuffs and bran. Beyond what is produced, large imports of flour are required, much coming from Hungary. In 1885, 302,392 qrs, worth $1,840,000 were imported, and 10,444 qrs, mainly for border trade, and valued at $70,000, were exported.

The Hungarian Milling Situation.

Pester Lloyd says that while Hungarian mills are not confronted by serious embarrassments, they feel the stress of the times like other establishments, and operation is now not a question of greater or less dividends, but of existence or non-existence. The condition of the flour trade is not very different from that of last year, save that it is worse. Although, taking the year as a whole, Hungarian mills did not show bad results, this fact was not due to a healthy state of the trade, but to ready grasping of small opportunites during various periods of the year, and, among some of the provincial mills, to exceptional circumstances under which they worked.

The beginning of 1885 was very favorable, a heavy trade being done in the first half of January not only inland, but with England and, though in smaller proportions, with Germany. Quickly as this period passed it was fully utilized by the mills. A very dull term then set in, both inland and outside, though our prices were maintained firmly. During the last half of March and the early part of April, trade again livened up, owing to the probability of war between England and Russia over the Afghanistan trouble, though only temporarily. In this period our mills shipped large amounts of flour to England, but the excitement resulted rather in a loss than a gain to the trade, as English buyers lost heavily on their purchases and would not engage in transactions later, at any figures. Up to the middle of April, prices rose 40@80c per metercentner, being so maintained until May 1, though, as trade was again wholly stagnant, they possessed only nominal significance. A like unfavorable situation, with steadily weakening prices, prevailed until in August, when the home consumption revived and trade improved. In September, the Bulgarian complication caused considerable activity, which continued into October and then subsided during the rest of the year. Prices of the highest, lowest and medium quality of products at two dates of each month were as below:

Month.	Highest.	Lowest.	Medium.
Jan. 1	$6.76	$1.76	$3.36
Jan. 15	6.92	1.72	
Feb. 1	6.92	1.72	3.40
Feb. 15	6.96	1.68	
March 1	6.96	1.68	3.44
March 15	7.12	1.72	
April 1	7.20	1.72	3.68
April 15	7.60	1.76	
May 1	7.60	1.76	3.66
May 15	7.44	1.76	
June 1	7.32	1.72	3.62
June 15	7.24	1.68	
July 1	7.16	1.64	3.44
July 15	6.88	1.52	
Aug. 1	6.72	1.52	3.04
Aug. 15	6.64	1.48	
Sept. 1	6.56	1.52	3.00
Sept. 15	6.56	1.52	
Oct. 1	6.84	1.60	3.16
Oct. 15	7.00	1.60	
Nov. 1	6.80	1.56	3.16
Nov. 15	6.80	1.56	
Dec. 1	6.80	1.56	3.20
Dec. 15	6.72	1.48	

This gives a year's average of $3.36 per 220½ lbs, the lowest since 1870. The averages for the preceding years down to that date were:

1884	$3.64	1877	$4.92
1883	4.04	1876	4.40
1882	4.48	1875	3.88
1881	5.08	1874	5.24
1880	4.96	1873	5.92
1879	4.32	1872	5.12
1878	4.00	1871	4.88

Marketing opportunities have declined considerably in every direction. The flour imports and exports of Hungary during the past year were as shown below in meter centners of 220½ lbs:

IMPORTS.

January, February, March	22,498
April	8,942
May	6,999
June	9,504
July	7,194
August	7,774
September	7,878
October	6,572
November	7,021
December	6,148
Total	90,531
Total, 1884	90,380
Total, 1883	70,551

EXPORTS.

	Austria.	Germany.	Switzerland.	France.	England.
Jan., Feb., Mar.	502,970	58,384	34,524	20,964	236,104
April	175,739	4,651	7,213	2,700	83,143
May	164,996	5,056	3,252	2,083	81,758
June	170,689	4,072	5,110	3,030	43,227
July	216,009	5.793	9,517	3,350	40,245
Aug	164,473	4,777	6,706	920	44,378
Sept	226,004	9,668	14,826	5,496	31,356
Oct	218 509	14,753	16,878	3,129	70,208
Nov	210,443	11,333	15,599	9,510	71,783
Dec	150,484	7,885	12,976	29,482	49,894
Total	2,200,316	126,375	126,601	80,663	752,095
Total '84	1,996,857	234,398	141,235	214,045	728,904
Total '83	1,917,678	275,389	172,502	193,917	710,589

From these figures it will be seen that the imports remained substantially the same. The export has fallen off but about 30,000 meter centners, but false conclusions would be secured by judging from these figures. The shipments to Austria are not in reality an export. Our mills, being driven from some old markets, have fostered this trade with great care, the result being the increase of 204,000 meter centers over last year. The real export, namely that to our most important markets, England, France, Germany and Switzerland, has dwindled to 1,100,000 meter centners, a decrease of 233,000 from the figures of 1884 and 270,000 from 1883. It must also be considered that the increase in exports to England is only an apparent one, as, at the close of the year, much consigned and unsold flour was stored there, and also, in spite of the remarkably low prices of fine flour and the export premium on gold received by us, the export referred to was carried on at heavy disadvantage and at losing figures.

The large falling off in shipments to Germany and France is the result of increased duties. As relates to Switzerland, apart from the fact that Swiss millers have taken up roller milling and make much better flour than formerly, the decrease is owing to two years in which our wheat was inferior in quality and, as a consequence, the flour also suffered. For this reason we hope to regain the lost ground here, as well as in England.

The burden under which our mills labor in common, has not tended to unify them in common interests or in action. Furthermore, the milling section of the industrial association, which has performed good service despite its lack of organization, has dissolved, without provision for new organization, a neglect likely to entail bad results. This regrettable fact speaks too plainly for itself to require further comment from us.

There is nothing of genuine interest to report regarding technical inventions. Budapest mills have received more or less extensive alterations and repairs, without, however, any change in system. The great aim in all calculations is to lessen cost of production. The state of the transportation systems may also be said to have remained the same as in the year preceding. Although, in the face of the situation, we can not look forward with satisfaction to the future, we do not anticipate that the existence of our milling industry is threatened. Good years have always alternated with bad and will continue to do so. But at length, by improvement in industrial circles at large, and the unavoidable failure of the present widespread trade policy, the milling industry, and especially our own, which possesses all requisites to assured existence in an unusual degree, will regain its rightful position as the producer of so important a food product.

Refering to the foregoing, *All. Muehlen-Nachrichten*, of Budapest, comments: Whenever the milling business is unfavorable there is a call for an association of the mills. This time it does not refer to a new society but to the reorganization of the old one in the trade association. We do not oppose such a union, and on the contrary have hitherto supported it steadily. But we are of the opinion that it can not exist with the single purpose of subordinating the decision of one or two mills to a majority of nine or ten, so long as it does not afford a particle of advantage to any of them. We have held this ground for years and as results have shown, rightfully. Again, the present time is unfit for undertakings of great moment. We are working within small circles now, but perhaps the revival is nearer than we think and when it comes it will be time enough to say more of a millers' association.

Pester Lloyd's article on our milling industry presents an exceedingly grave outlook. We are not optimistical, but we can see no truth in the expression "existence or non-existence" as applied to our mills. We require proof first that this branch of industry is in better condition in any part of the world, than is ours. Our mills are too firmly founded to receive a death blow from any prohibitive tax. We have lost marketing territory to some degree, but the inalienable home trade has developed to greater dimensions. We shall dispose of our fine flour, sooner or later, with or without profit, because in this direction we are unequaled. New outlets are constantly opened by the increasing demand for food materials, and it is likely that we shall again secure a hold upon our former markets. The tax protective idea in Germany will probably soon weaken, as it has not brought the benefit anticipated.

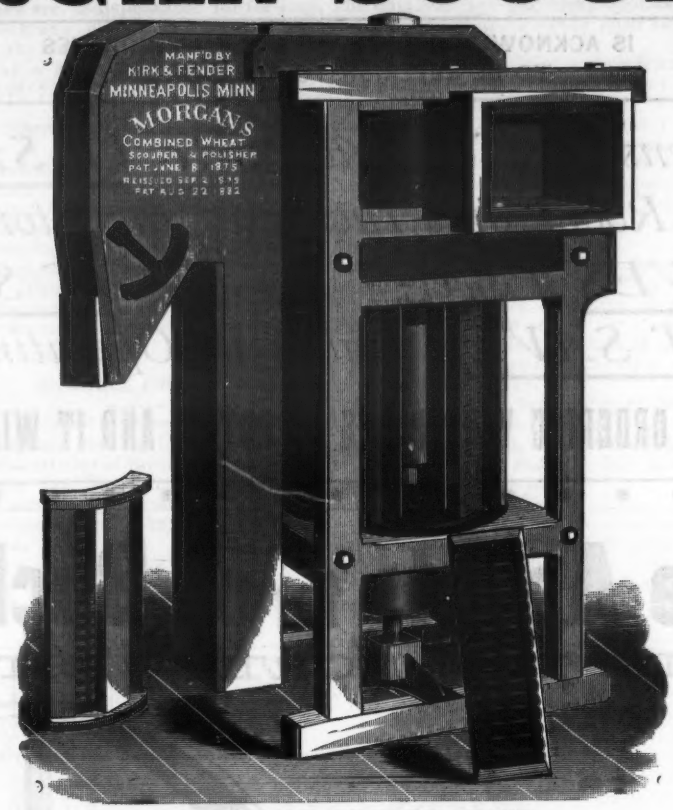
Cleveland & Hardwick, of the Erie Engine works, Erie, Pa., announce that they have leased the store rooms Nos. 821 and 823 North Second street, St. Louis, Mo., and established a branch house for the sale of stationary, portable, semi-portable and agricultural engines and vertical boilers. They have secured the services of Albert B. Bowman (who has been so well known in machinery circles at St. Louis for the past ten years) as manager at this branch. Their aim in this direction is to reach both dealer and customer direct, and not work through a middle party or agency. Mr. Bowman will carry a full line of their goods, and is prepared to make such prices as are consistent with the times and class of goods.

A "thing of beauty" and therefore "a joy forever," is the elegant new roller mill catalogue and price list of the old and popular Jno. T. Noye Mfg. Co., of Buffalo, N. Y. Within its illuminated covers will be found not only illustrations of every style of mill made by this firm, but complete and interesting details as to the work they do, etc., so that the reader can see at a glance the size, capacity, space required, weight, and cost, permitting close estimate as to requirements, freight rates, etc. The work will be sent to any address on application to the publishers.

Bill Wagner, the Independence, Mo. miller, was in St. Louis last week. He said the farmers in his vicinity expected to harvest July 1, and he thought he would be able to grind new wheat between July 4 and July 10. Farmers were bringing in 500 to 1,000 bus of old wheat daily. The prospects were excellent and the growing wheat had all the rain it needed.

UNPRECEDENTED SUCCESS
OF THE
MORGAN SCOURER.

IT IS GIVING BETTER SATISFACTION THAN ANY OTHER WHEAT CLEANER IN THE MARKET.



IT NEVER BREAKS OUR PROMISES AND WE DON'T KNOW WHAT IT IS TO HAVE ONE RETURNED.

SEND FOR CIRCULARS, ETC., TO THE

MINNEAPOLIS WHEAT CLEANING MACHINERY CO., MINNEAPOLIS, MINN.

JNO. MARTIN, President. J. K. SIDLE, Vice President. H. W. HOLMES, Treasurer.

SIDLE FLETCHER HOLMES CO.

Manufacturers of the

BEST GRADES

ROLLER GRANULATED FLOUR

FROM SELECTED MINNESOTA AND DAKOTA HARD WHEAT.

Northwestern and Zenith Mills, MINNEAPOLIS, MINN.

WOODEN PULLEY
WITH
Taper-Sleeve Fastening.

WE GUARANTEE entire satisfaction. All pulleys not as represented may be returned at our expense. Where desired we will give 30 days time. We claim our pulleys to be the cheapest, best and strongest in the market. Our wooden pulleys will transmit from 35 to 60 h. p. more than the same size of any iron pulley made.

WOODEN SPLIT PULLEY

FOR CIRCULARS AND PRICES, ADDRESS

WOODEN PULLEY MFG. CO., Office and Factory, River St. and Second Ave. N. P. O. Box 989. MINNEAPOLIS, MINN.

OUR ELEVATOR SYSTEM

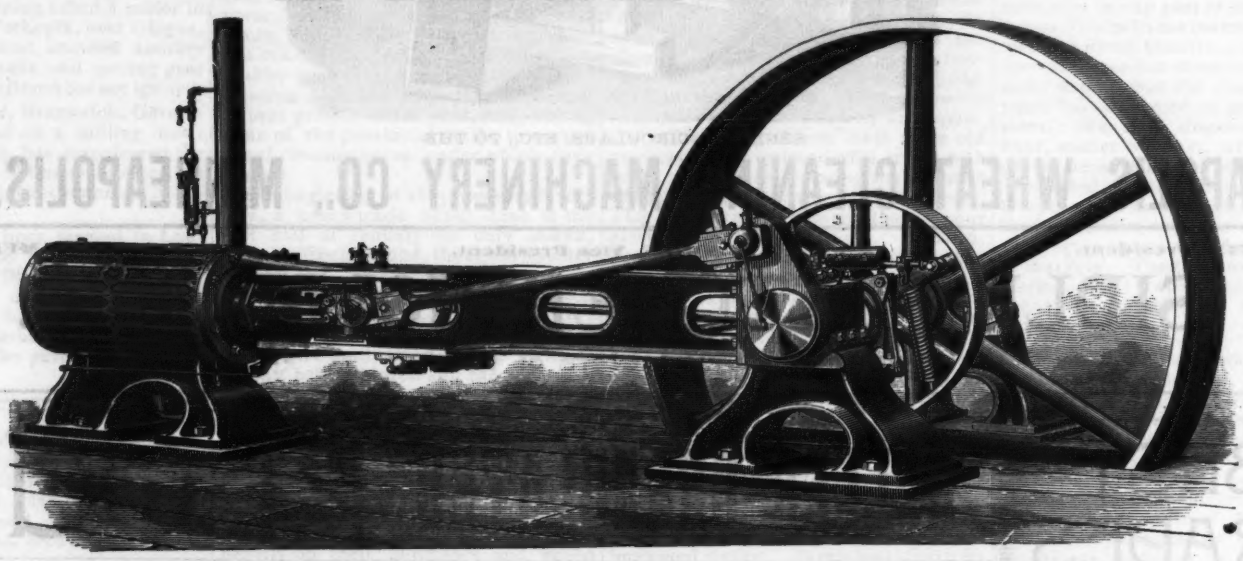
IS ACKNOWLEDGED BY THE BEST AUTHORITIES
TO BE SUPERIOR TO ALL OTHERS.

IT SAVES Expense in Construction. *IT SAVES Machinery.*
IT SAVES Room, and Increases the Storage Capacity.
IT SAVES Power. *IT SAVES Insurance.*
IT SAVES Labor in Operating.

CONSULT US BEFORE ORDERING YOUR PLANS OR OUTFIT AND IT WILL SAVE YOU MONEY.

We are Sole Agents for the Buckeye Engine

IN THE NORTHWEST.



This Engine SURPASSES ALL OTHERS WHERE FUEL IS AN OBJECT, and is Particularly Adapted to Flour Mills and Elevators

WE CHALLENGE THE WORLD

ON

FLOUR MILL BUILDING

IN THE NORTHWEST, FOR THE FOLLOWING REASONS

We have the most experienced engineers to plan, construct and start our mills. We manufacture nearly all of our machinery. We have the best facilities in the U. S. for manufacturing this class of machinery. We have been here from the time the first mills were erected in this region, and our experience in mill building in this territory is not equaled in the world.

WE WILL GIVE YOU A FIRST CLASS MILL FOR LESS MONEY THAN ANY OF OUR COMPETITORS.

PRAY MFG. CO., Minneapolis, Minn.

THE McANULTY SYSTEM.

The manufacturers of McAnulty's new system of distributing and feeding mill stock claim that "it is to the flour mill what the governor is to the steam engine—a regulator. This process consists of a proper apportionment of the stock being fed into a mill to all subsequent machines, as for instance, if a stream of 50 lbs per minute be fed into a mill, each and every machine in the mill is provided at all times with its relative proportion of the same—no more, no less—giving an even flow of stock through reels, rolls, purifiers and other machines at all times, and a consequent uniform treatment of stock, an even and increased product, with much less destructive wear on machinery. For convenience of description of McAnulty's system reference will be made to a mill in which a continuous stream of one bushel of grain per minute is fed to first break rolls. The break stock from first scalpers is sent to first distributor, which spreads the stream out into a sheet, divides it into four streams (as shown in Fig. 1) each stream of which is conducted into one division of the double Sperry force feeders attached to the two sets of second break roller mills, each of which spread their respective streams out into sheets the width of the rolls they are supplying. It must be understood that the distributors and feeders on second break and all subsequent roller mills and purifiers are adapted to accommodate themselves to the variations which are constantly taking place in the bulk of the stream of stock, as well as to any slight variations that may occur in quantity. By this arrangement it will be seen that each pair of second break rolls receives just one-fourth of the volume of break stock as regularly and precisely as the first break rolls receive their supply from their set of feeds.

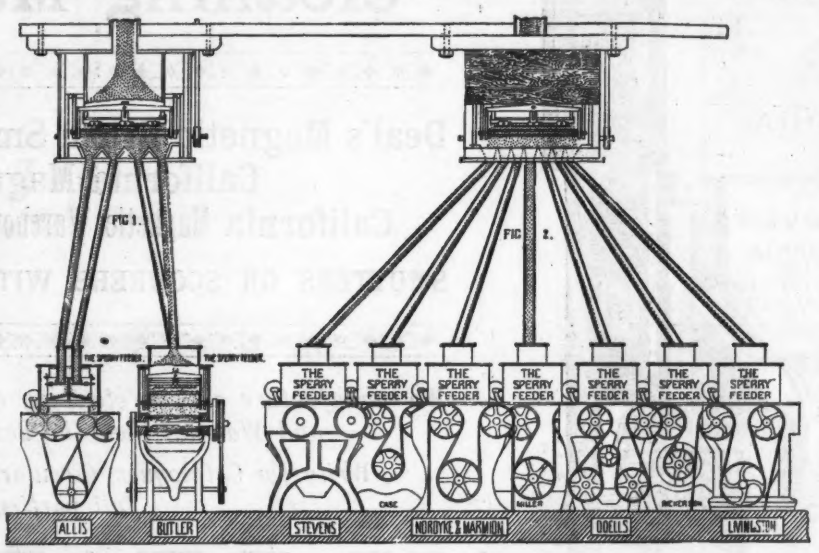
"The break stock from second break rolls and second break scalpers is sent to second distributor, which, as in the first instance, mathematically divides the entire stream into as many streams as there are pairs of rolls used on third break, thus apportioning to each pair of rolls its relative portion. The third break stock is in like manner sent to third distributor, fourth break stock to fourth distributor and fifth break stock to fifth distributors, all of which make their proper distributions to each machine of the succeeding series of their proper amounts. In the flow of middlings the same arrangement of distributors should be made where several pairs of rolls are used in each reduction.

"Thus it will be seen that whatever amount of stock is fed to first break rolls is properly apportioned to every machine in the mill. No machine can receive more than its due proportion, nor can any receive less than its due proportion.

"The variations in the flow of mill stock are not so great as is generally supposed, but the want of machinery by which it may be distributed to the rolls and other machinery without being held in check is cause of a great amount of stock being wasted as there is no reason why a properly programmed mill will not give a much more even treatment of stock when each machine receives every minute the exact amount of stock that it is calculated to treat. By this apportionment of stock, it will be seen that chokes and overflows, with their attendant waste, are dispensed with, as also is the constant changing of the sets of rolls, there seldom being found any necessity for changing the set of rolls except when first break feeds are changed to a greater or less quantity of wheat. This system enables the mill to be stopped and started without the attendant waste accompanying other systems, as the entire flow of stock ceases to pass the machines when the power is about half down, and is again set in regular movement when the power is high enough to properly treat the stock.

"The Sperry feeder, without which the system connot be carried into effect, has been brought to such a high state of perfection by Mr. McAnulty that it has already become a part of many of the leading mills where the system has not yet been incorporated, as it is found that they are indispensable for feeding soft stock and bran, and that they improve the feeding of break stock so much as in some instances to attain a saving of 7 to 10 pounds of wheat per barrel."

The Sperry Feeder Co., the sole proprietor of the McAnulty system, as well as of the Jewell and Sperry feeders, has located shops in Minneapolis and is supplying millers with these machines on most reasonable terms. It may here be remarked that their machinery is gotten up in a most excellent style and finish. They will furnish millers with any desired information, giving flow sheets for this system where desired.



KANSAS CHAFF.

[*Special Correspondence.*]

The Osage Milling Co., of Pomona, has filed articles of incorporation. The directors are Jonas A. Washburn and J. C. Curry of Quenemo, A. S. Everett of Atchison, and Benjamin Curry of Pomona.

J. B. Snell has leased the Quaker City mill, at Clay Centre, and is "whooping her up" ten hours a day. This is fortunate for the city, as Mr. Snell makes a success of all he undertakes.

Irving H. Chapman sold his mill at Oketo, last week, to Peter Anderson and C. S. Chapman, for $7,000, The purchasers are successful millers, and have ample means to make this a first class mill, which they intend to do at once. They will put in rolls.

Geo. Brinkman, of Great Bend, left for Kansas City recently, to engage in the milling business with his uncle, G. L. Brinkman.

The gales of the past week gathered in the usual supply of smoke stacks. Those reported down to date are at Miers' mill at Hays City and the new mill at Ellis.

H. Wohlenberg is traveling for the City roller mill, at Scandia. Mr. Ericson, proprietor.

The mill at Pomeroy has been sold to parties in Kansas City, who are making a general overhauling and will be ready to start soon.

J. E. Orr, of Altoona, is having his mill overhauled and is putting everything in apple pie order for the fall trade.

The Hollenberg mill has lately changed hands, S. R. Benson being the purchaser, and with a first-class miller and the mill in good repair, success is assured.

The millers at Larned are having a little unpleasantness with the grocers of that burg in regard to their shipping in flour from other towns. The mills are now selling flour at retail at wholesale prices. As an indication of the effect, the Van Horn Brothers sold in one day, recently, 12,000 pounds at retail.

Mayer & Munger, of Brown's Grove, suffered considerable loss last week in the breaking away of their mill dam. The dam was not yet completed and a sudden rise in the Pawnee river swept it away.

The new mill at Cairo was christened by a dance on the evening of May 11.

Mr. Hartman, of Enterprise, is remodeling the Dillon mill for the J. B. Ehrsam Machine Co., of Enterprise.

Eli Beaver, an old miller, died at Nashville, Tenn., May 2. He operated at different times mills in Rowan county, N. C., Delphos, Kas. and Biggsville, Ill.

Erastus Smith, of Burlington, has sold his interest in the Burlington City mill to J. S. Peer, and the firm is now Peer, Horton & Miller.

Fifteen feet of the milldam at Guilford was carried away lately by a rise in the Verdigris river.

The editor of the local paper at Cheny has figured it out that it takes about five tons of flour a week to feed the inhabitants of the town, and that they should have a mill to make it.

Chase wants a mill.

Rosedale expects to have a new mill.

Norwich is making an effort to secure a flouring mill. Two of her citizens, Dickerson & Whitman are corresponding with a number of mill men in the east, endeavoring to induce them to locate there.

Kirby & Howe, of Marshalltown, Ia., are looking over Minneapolis, Kan., to see what inducements it has to offer for a mill.

JAYHAWKER.

Topeka, May 15.

AKRON NEWS.

[*Special Correspondence.*]

Aside from the general unsettled condition of affairs caused by the labor troubles in the east, there is no material change in the state of the milling business of Akron and vicinity. During the past two weeks, from April 30 to May 14, these labor disturbances have had some effect on business, causing dealers to hesitate before contracting or ordering large shipments, and in the absence of outside orders, trade assumed rather a local character. Akron has not been without the experience of a strike. The 65 to 70 men employed in clearing up the debris of the destroyed Schumacher mills, on May 1 notified their employers that they desired more wages or shorter hours, viz: $1.25 for eight hours or $1.50 for ten hours, and gave them until Monday the 3d for a decision. Mr. Schumacher at the appointed time Monday, notified the men that the request could not be complied with. He was in no hurry to have the work done immediately, doing it at present more to afford his men employment than anything else. He had already paid out $1,200 on the work since the fire simply to assist the men, who were nearly all formerly employed about the burned mill. Notwithstanding this state of affairs, the men still persisted in the demand for the advance, and not contented to strike themselves, they marched to the Cascade and Cereal mills in the afternoon to induce the employes of these institutions to join them. This the latter refused to do to a man. Failing to receive any encouragement at either place, the strikers marched down south Main street to where a force of men were engaged on sewer work, and prevailed upon them to join in the demonstration. They remained out until Monday last, when about 20 of the mill employes were very glad to resume work under the old conditions.

The mills have all been running full time the past two weeks, except the Empire or barley mill and the Brick mill. The former has been down this week, while the latter has been running half time.

The Seiberling mill is again running full time, having increased its output to 700 bbls per day.

E. B. Wright, an employe of the Seiberling Milling Co., has given up his position and gone west. Walter Sterling, formerly of the Akron Milling Co., takes his place.

One of our enterprising citizens and capitalists is booming the stock of the Schumacher Milling Co., advising citizens to subscribe for stock and thus insure success to this home institution before offering inducements for other manufactories of less magnitude to locate here.

The main office of the Schumacher Milling Co. is now in the plasterers' hands. Bids have been received this week for the building of the company's dry house and elevator. They will be opened tomorrow and the name of the successful contractor made known.

Head Miller Kruse, of the Cereal mill, lost his 13 year old son this week by diphtheria.

John Greiser, one of the millers in the Cereal mill, met with a severe and painful accident on May 6. He was ascending on the elevator from the first floor when a millwright at work in the fourth story accidentally dropped a nailing hammer down the elevator shaft, striking the unfortunate man on the head. He received a very bad cut on the scalp and was rendered unconscious. It was feared at first that he had sustained a fracture of the skull, but an examination by a physician proved this not to be the case. After the wound was dressed, the injured man was taken to his home by Mr. Schumacher.

The Franklin mill, of Clinton, O., is putting in additional machinery to increase its capacity to 150 bbls per day.

Mr. Schumacher has been urged to change the name of the Windsor hotel, owned by him to Hotel Schumacher, on account of its temperance principles.

There has been a rumor afloat during the week that Mr. Schumacher had telegraphed to the east for 100 Germans to take the place of his striking employes. The story upon investigation was found to be without any foundation.

NOVICE.

Akron, May 14.

Milwaukee grain dealers have long maintained that the rates of storage for wheat at that point were exceedingly high, and several unsuccessful attempts have been made to secure a reduction. The charges are ½c per bu for ten days, or 15c a bu for a year. Gov. Young on Monday caused to be drawn up and placed in the hands of President Johnson, of the chamber of commerce, a resolution to reduce this rate one-half, making the charge for grain storage ¼c per bu for ten days or 7½c per bu for one year. A committee was appointed to investigate and report.

ALL SILK @ FORTY INCHES WIDE

Millers desiring a **Firm, Hard Twisted Cloth,** and one that will bolt well at all times, should try our

EXCELSIOR ANCHOR BOLTING CLOTH

AND **Extra Heavy Grits Gauzes,**

OF WHICH WE ARE THE SOLE IMPORTERS IN THE UNITED STATES.

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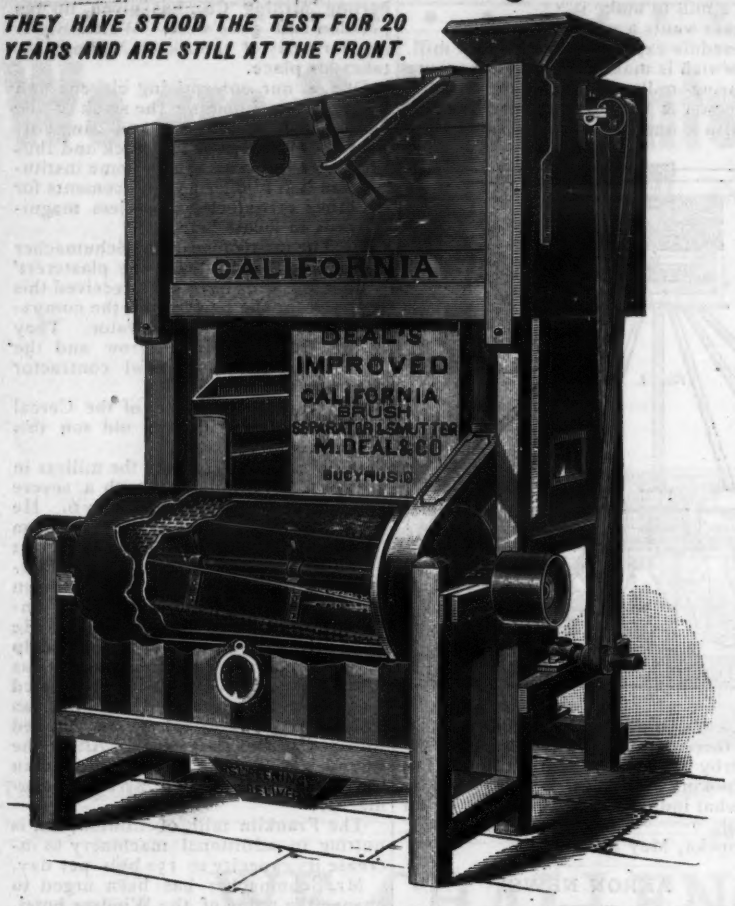

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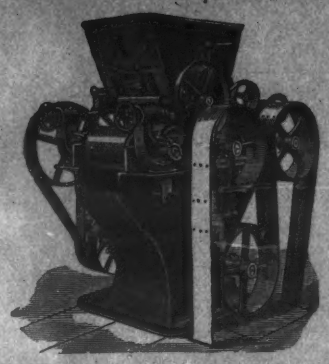

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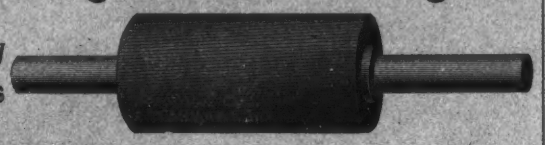

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President—Dan. J. Foley.
First Vice President—Wm. Milne.
Second Vice President—Jas. Brown.
Secretary and Treasurer—A. Snuggs, Nos. 110 and 112 North Fifth Street.
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The Operative Millers Association

OF MINNEAPOLIS.

Officers—President, Wm. Hastings; vice president, G.W. Rathbun; secretary, Fred George; treasurer, Jacob Krum; F. J. Clark, secretary and treasurer accident benefit bureau.

Meetings—First Sunday of each month, at Windom hall, corner Washington and Second Aves. S. All practical millers of the city invitedto join. Blank applications may be had of secretary.

EMPLOYMENT BUREAU.

The above department has been organized in connection with the association for the benefit of its members. Mill owners and head millers wishing to employ men to take charge of mills or second millers, are requested to correspond with the secretary. G. W. RATHBUN. Sec'y of Bureau, 38 Stinnan Block.

Minneapolis Head Millers Assoc'n.

The object of this association is to bring the head millers of Minneapolis and the state into closer social relations, and in this way advance the science of milling. Head millers and ex-head millers of the state are eligible for membership. Applications for membership are made by candidates in writing to the executive committee, indorsed by two members and accompanied by initiation fee. Address secretary for further information. Following are the officers:

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Vice President—Jas. W. Tamm, Phœnix Mill.
Secretary—Fred J. Clark, Northwesten Miller.
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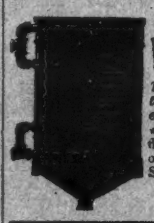

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7.00	12.30	6.15	4.00	4.00	10.00
7.30	1.00	6.30	5.30		10.00
8.00	1.30	7.00			2.00
8.30	2.00	7.30			4.00
9.00	2.30	8.00			6.00
9.30	3.00	3.30			
10.00	3.30	9.00			
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11.00	4.30	10.50			
11.30	5.00				

Leave Excelsior	Leave Harriet.	Leave Calhoun.			Leave Min haha
	7.25	†6.00	11.40	5.00	†7.20
	9.55	6.30	11.58	5.40	10.50
	6.25	7.00	12.00	5.58	12.50
		7.30	12.32	6.00	2.50
		8.00	1.00	6.32	5.20
		8.30	1.30	7.00	6.52
		9.00	2.00	7.30	
		9.30	2.30	8.00	
		10.00	3.30	8.30	
		10.30	4.00	9.12	
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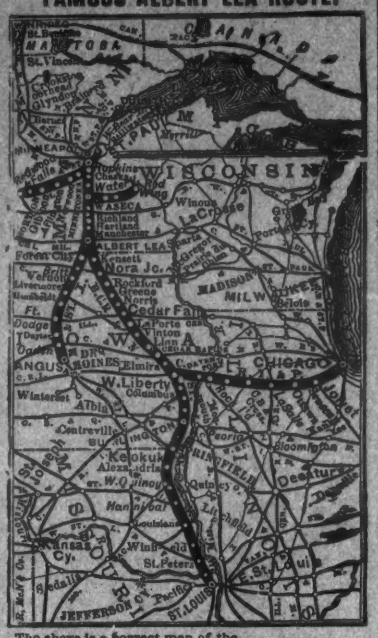

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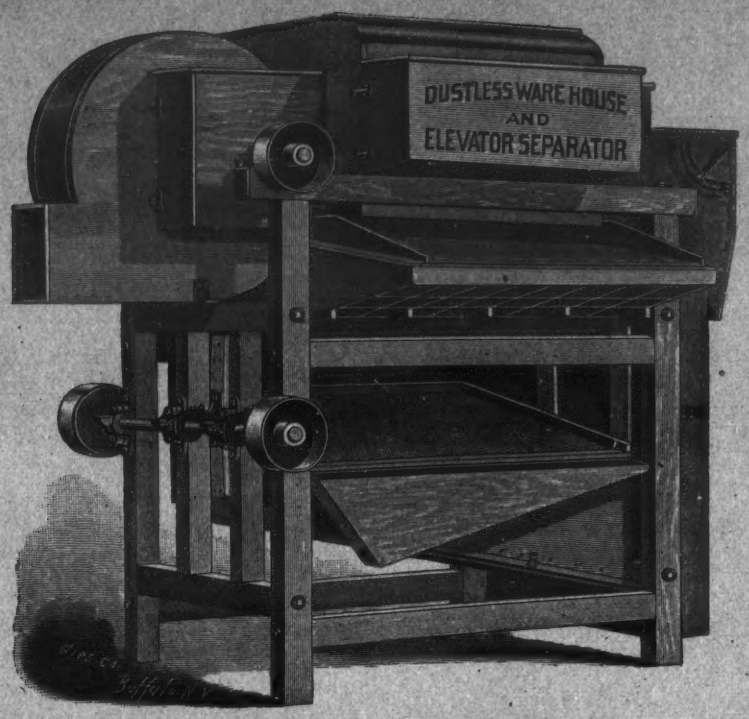

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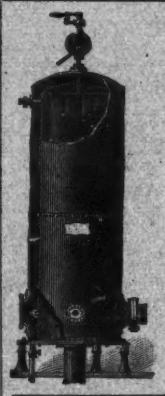

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